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THE

POPULAR ENCYCLOPEDIA;

BEING A GENERAL DICTIONARY OF

ARTS, SCIENCES, LITERATURE, BIOGRAPHY, HISTORY,

AND

POLITICAL ECONOMY.

REPRINTED FROM THE AMERICAN EDITION OF THE "CONVERSATIONS LEXICON,"

WITH CORRECTIONS AND ADDITIONS,

SO AS TO RENDER IT SUITABLE TO THIS COUNTRY, AND BRING IT DOWN TO THE PRESENT TIME.

WITH

DISSERTATIONS

ON THE RISE AND PROGRESS OF LITERATURE,
BY SIR D. K. SANDFORD, A. M. OXON., D. C. L.

ON THE PROGRESS OF SCIENCE,
BY THOMAS THOMSON, M. D., F. R. S. L. & E., &c. &c.

AND

ON THE PROGRESS OF THE FINE ARTS,
BY ALLAN CUNNINGHAM, ESQ.

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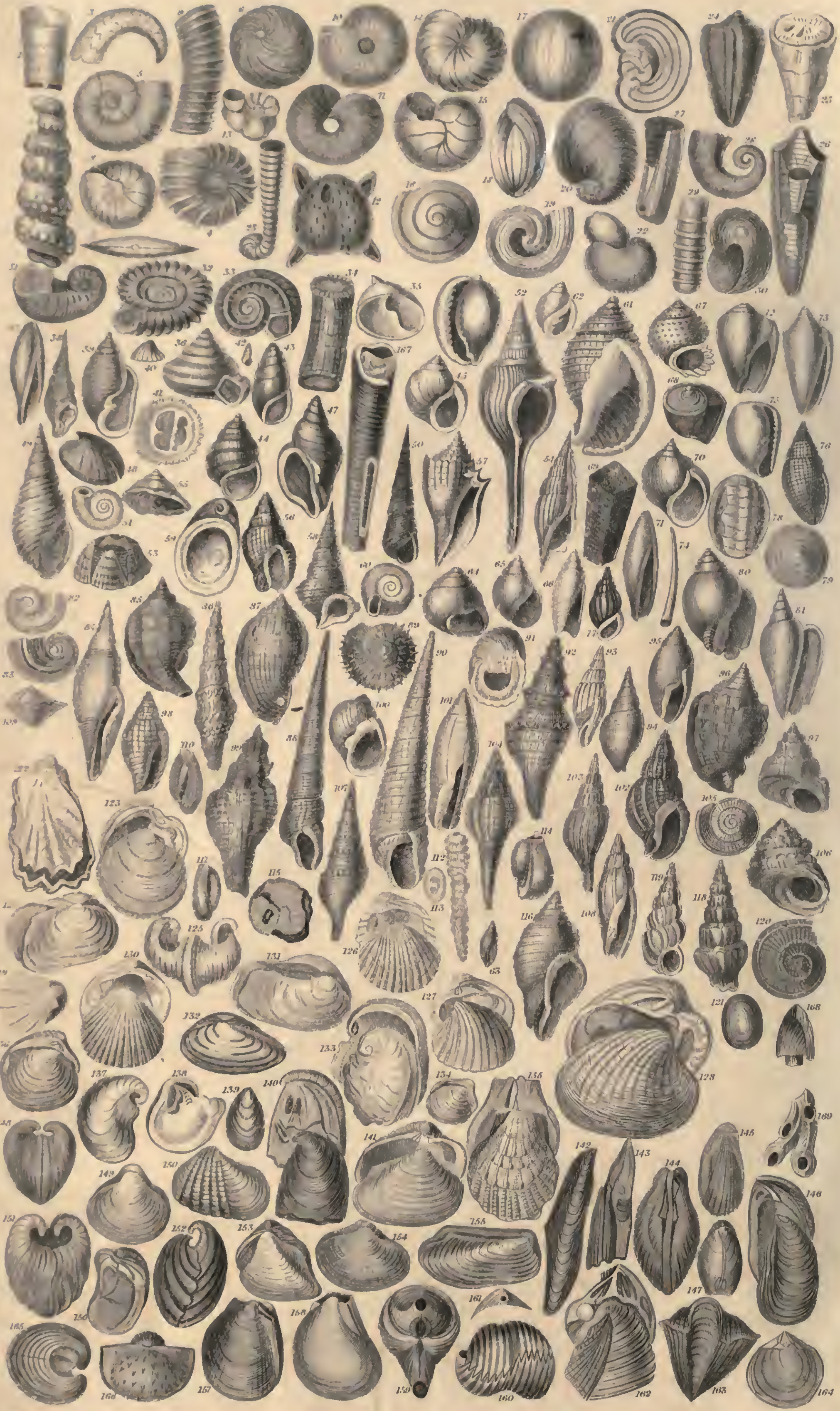

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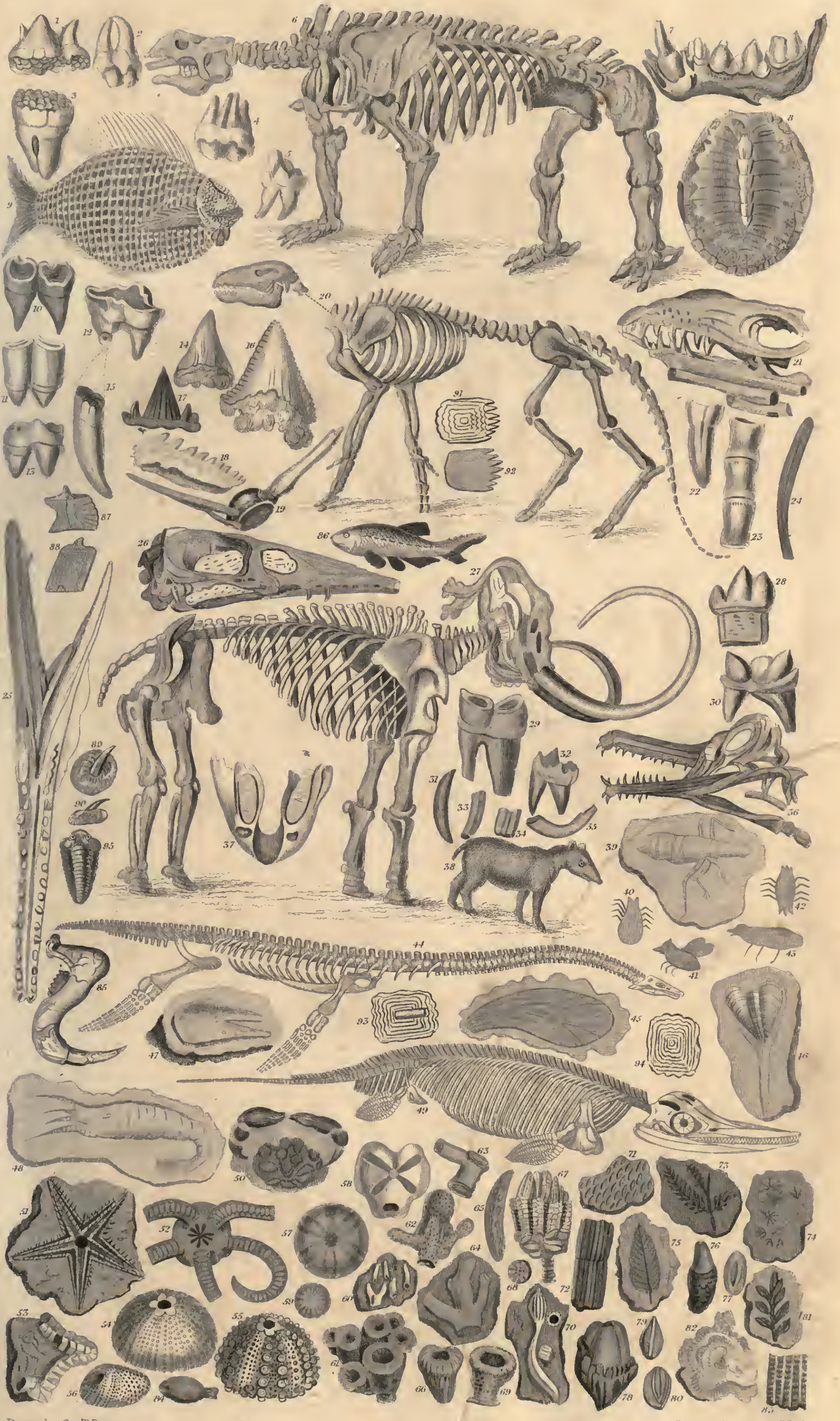

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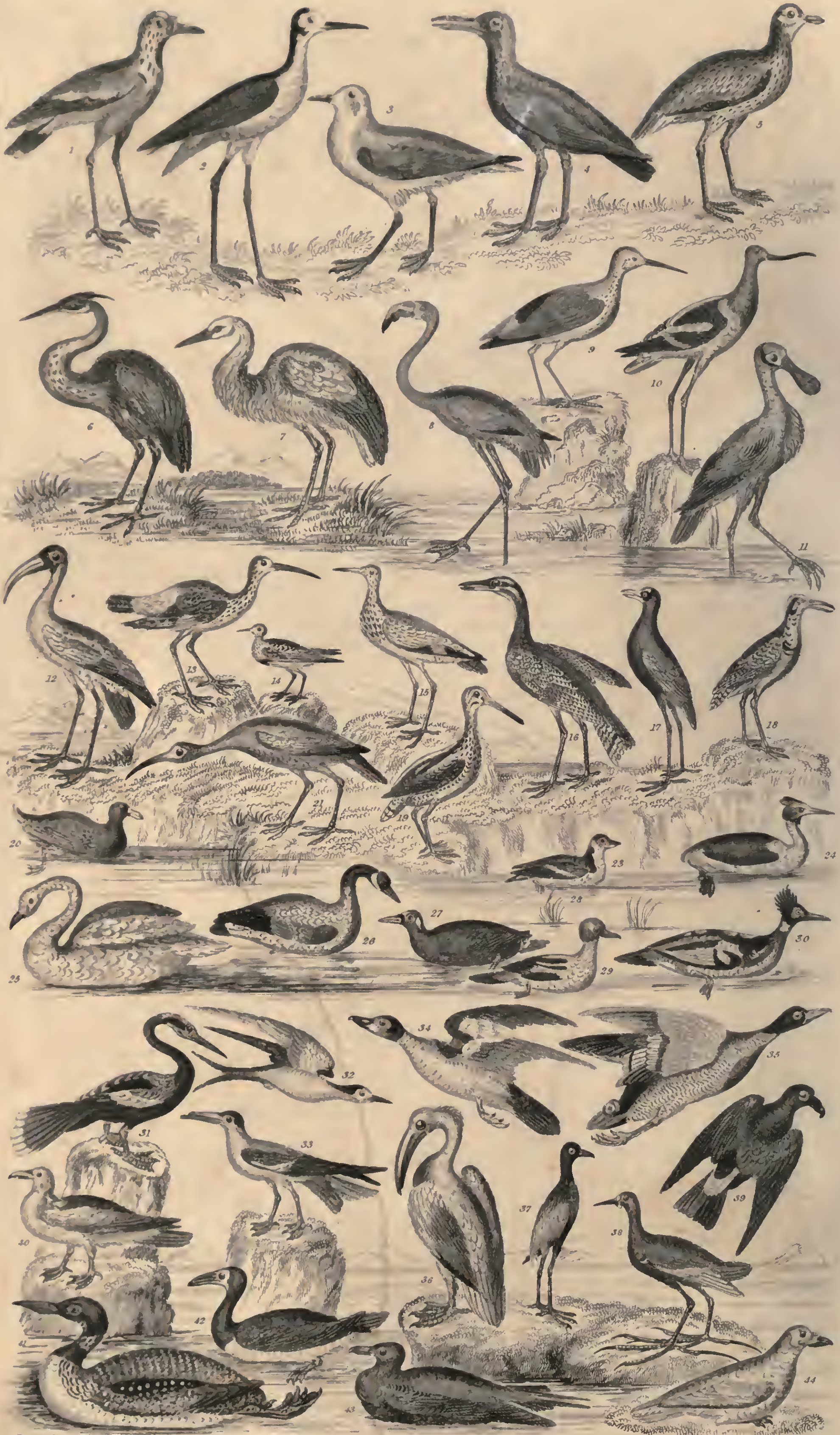

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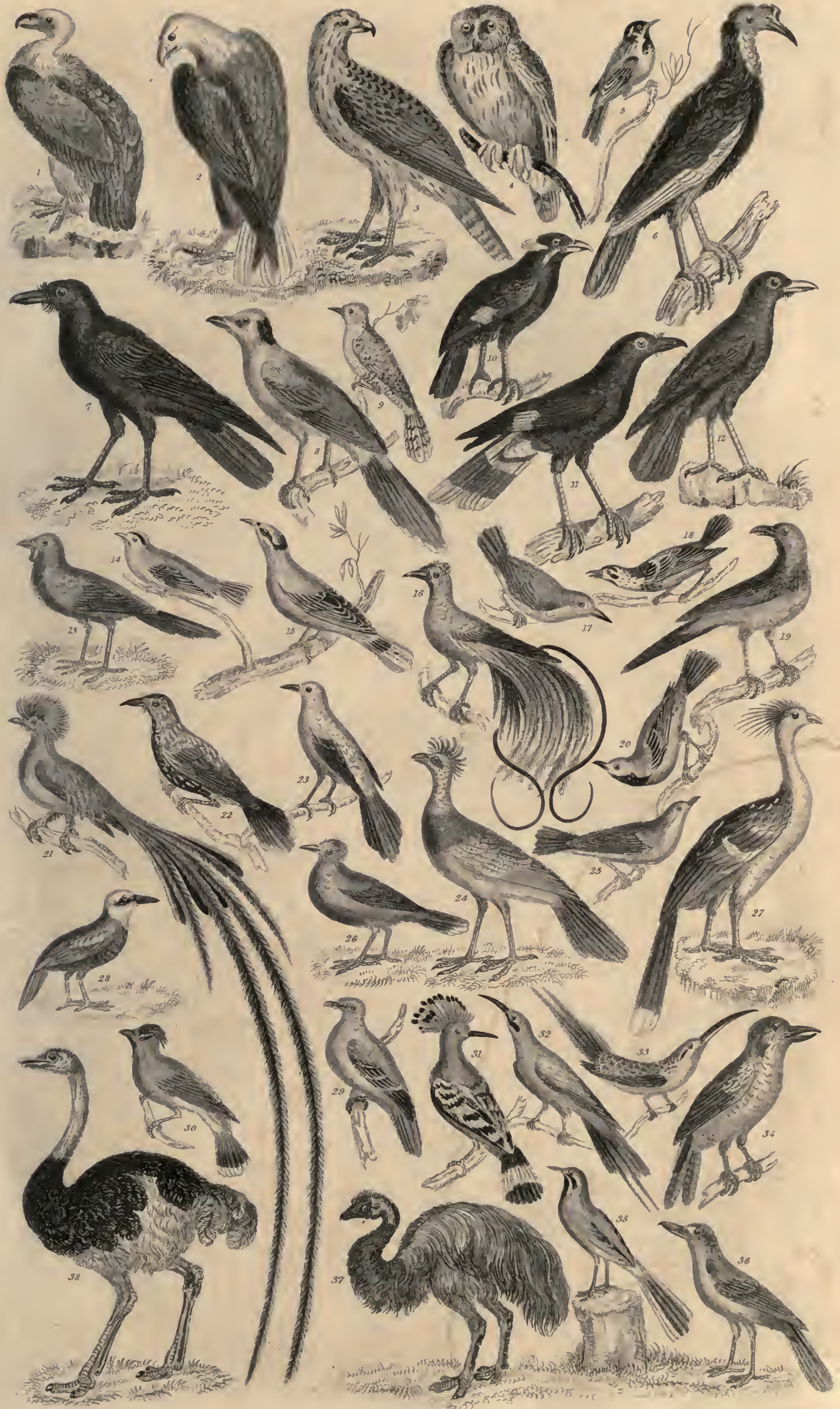

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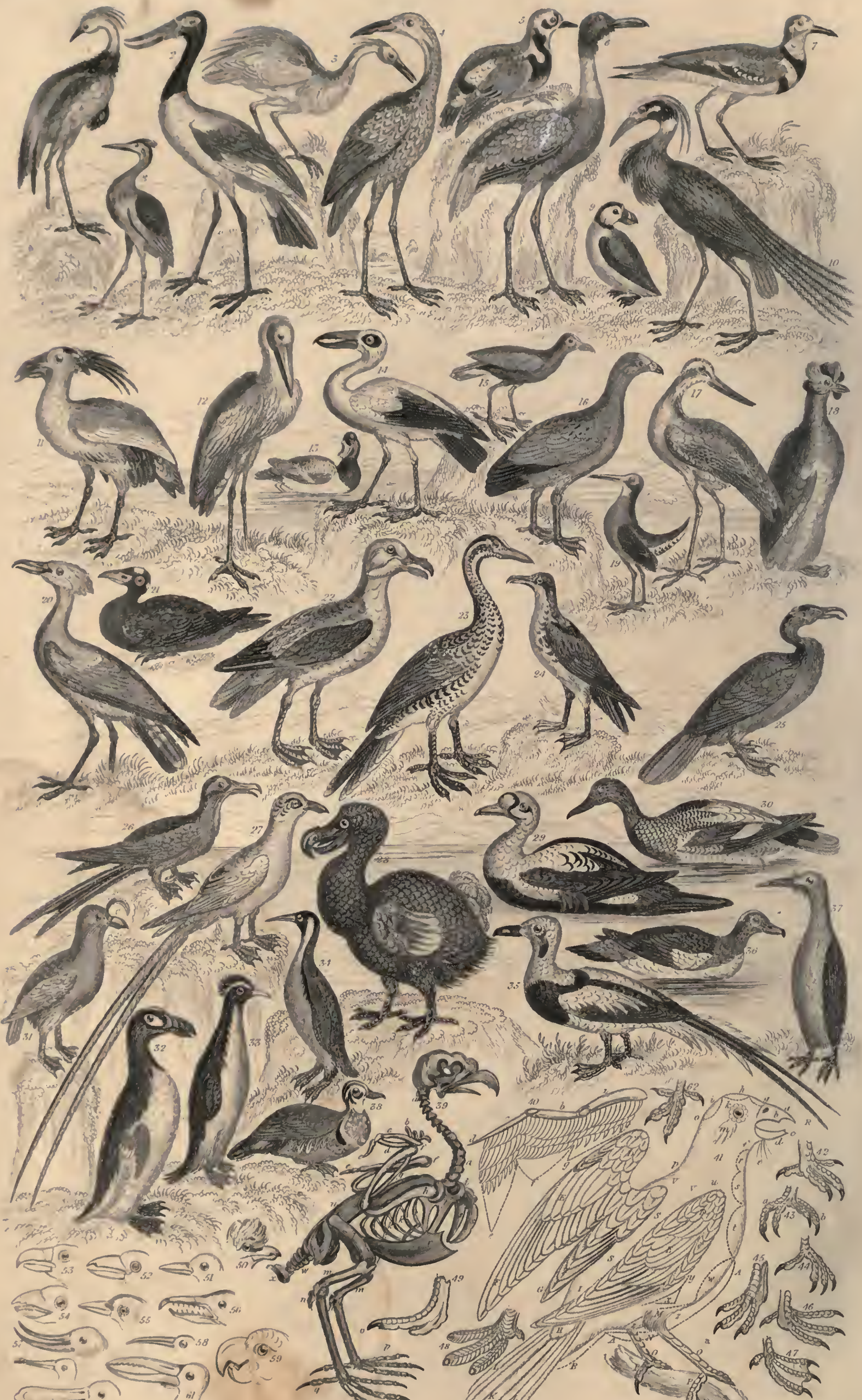

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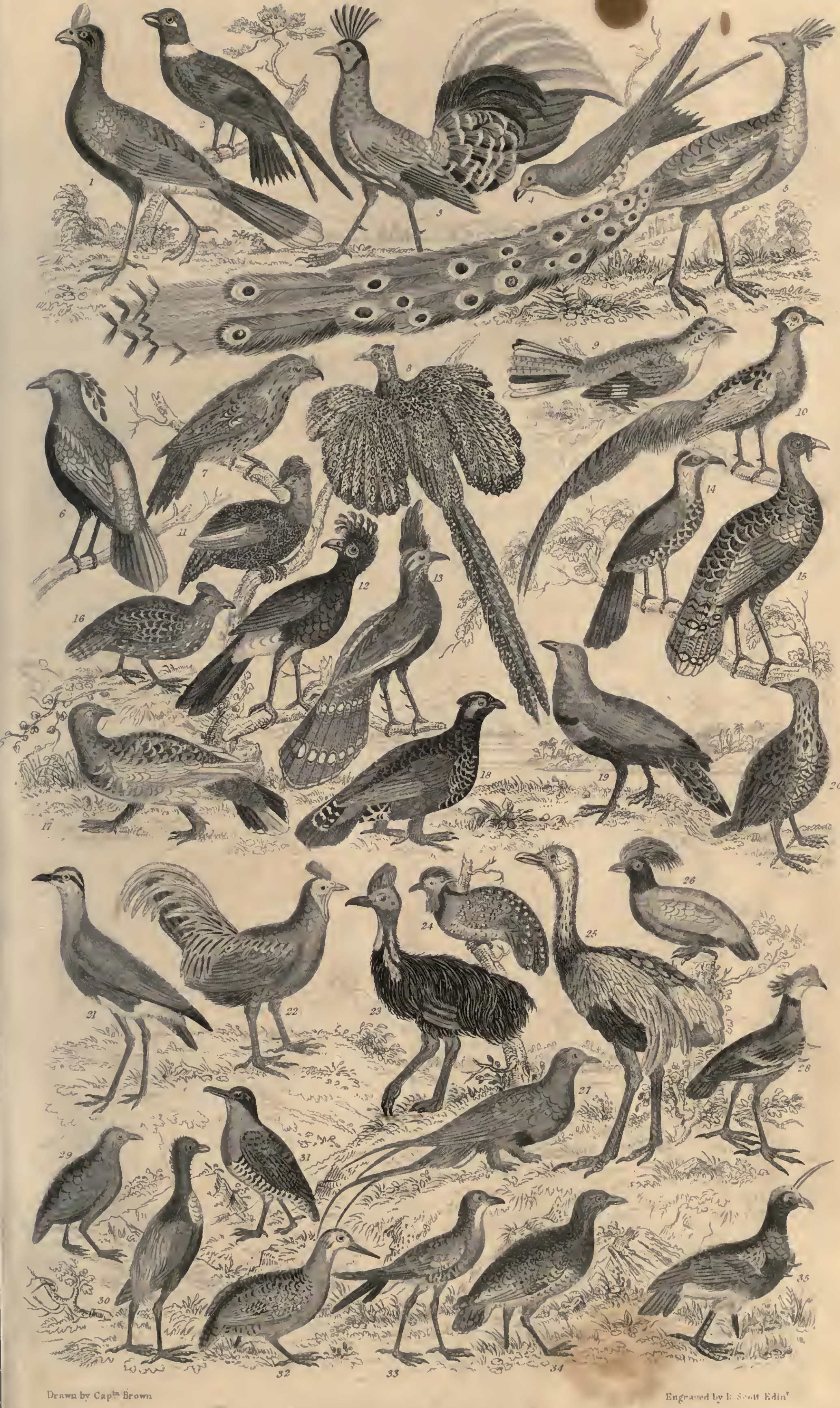

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THE
POPULAR ENCYCLOPEDIA;
OR,
CONVERSATIONS LEXICON.

ROME (HISTORY OF).

ROME (Roma), the *eternal city*, as it is often called, with which almost every thing great and memorable that has happened in Europe for 2500 years has been connected, and which, first with the sword, and afterwards with the more powerful arms of religious faith, ruled a large portion of the European world for centuries, and saw people of all climes bend before its majesty, is now only the shadow of its former greatness. Ancient Rome was situated nearly on the site of the modern city, in Latium, on several hills (whence the poetical appellation of the *seven-hilled city*), on both sides of the river Tiber, not far from the Mediterranean sea; but the principal part of the city lay upon the eastern side of the river. Here was situated the Pincian mount, and on the river lay the Campus Martius, the Capitoline hill, the Roman forum, and mount Aventine. The Quirinal, Palatine, and Cœlian hills, formed a second range eastward of the preceding, extending from north to south; the Viminal and Esquiline a third. On the other side of the Tiber lay the Vatican mount and Janiculum. This region was inhabited before the foundation of Rome. The city of Palantium, built by some Greek colonists on the Capitoline mount, was perhaps still in existence when Romulus and Remus led a colony thither from Alba Longa; so that this city was only extended, and Rome Proper was not entirely new. The new city probably derived its name, not from its founder (who was, perhaps, called *Romulus* from it), but from the river, which, as Servius informs us, was anciently called *Rumon*. The derivation from the Greek ῥωμη (strength) is an absurdity, and of late origin. Two different epochs are assigned for the foundation of Rome. According to Cato, it was built 752, according to Varro, 754 years before Christ. The latter date is generally adopted. The founding of the city commenced with ceremonies borrowed from the Etrurians. Romulus traced a square furrow round the Palatine hill with a plough drawn by two white cattle, and caused a wall of earth to be thrown up in the direction of the furrow. The interior was filled with huts.

The history of Rome is divided into three periods, in the first of which Rome was a kingdom, in the second a republic, and in the third an empire.

I. From the foundation of the city to the year 245, Rome was a monarchy. Romulus was chosen the first king of the new city. He adopted the Etrurian emblems of royalty—twelve lictors; but his power, and that of his successors, was so circumscribed, that Rome was, even then, in reality, a free state. A sort of municipal constitution was formed, probably after the model of that of the mother city. The principal points of this constitution are the creation and constitution of the senate; the origin and permanent establishment of the patricians, or hereditary nobility; the division of the people into classes, and the different kinds of popular assemblies (*comitia*) founded thereupon; the religious institutions; and, finally, the domestic relations of clientship, marriage, and particularly of the power of a father. Romulus, the leader of the colony (from A. U. 1 to 37), increased the number of the citizens by the establishment of an asylum, and by the incorporation of a part of the Sabines. Numa Pompilius (39—82) founded the Roman state-religion; Tullus Hostilius (82—114) conquered Alba, and laid the foundation for the supremacy of Rome over Latium; Ancus Martius (114—138) built Ostium; Tarquinius Priscus (138—176) carried on a war with the Etrurian confederacy; Servius Tullius (176—220), the ablest of the kings, placed Rome at the head of the Latin confederacy, and divided the nation, according to property, into six classes, upon which the *comitia centuriata* and the census were founded; the seventh and last king, Tarquin the Proud (220—245), aspired to absolute power, and was expelled on account of his tyranny. The constitution was then remodelled (509 B. C.). (See *Romulus*, *Numa*, and *Tarquinius*.) Even at this period, we can perceive in the Romans a manly, free, bold, and ambitious people. Agriculture and war were their chief occupations. In private life, simplicity of manners and pleasures prevailed.

II. Rome as a republic, from 245 to 727 A.U.

First Period. The royal power, with the same indefiniteness as it had been exercised by the kings, was committed to two consuls chosen annually. At the commencement of the new government, Rome had to sustain a contest with the Etrurians and Latins for its freedom. The oppressions of the patricians, who arrogated the whole power to themselves, exasperated the plebeians, and produced, in the year 261, the establishment of tribunes of the people, (*tribuni plebis*,) who were to protect their rights and liberties against the encroachments of the nobility. A protracted contest arose between the patricians and the guardians of the plebeians, the principal points of which were as follows:—1. The tribunes, in their accusation of Coriolanus, claimed the right of bringing individual patricians before the tribunal of the people, and thus gave rise to the *comitia tributa*, so fatal to the nobility. 2. They demanded that the lands taken from the neighbouring states should be distributed among the poorer people, and thus gave rise to the contests relative to the agrarian laws, (*leges agrariæ*.) 3. The tribune Publius Volero extended the prerogatives of the *comitia tributa*, and gave them the choice of the tribunes. 4. The tribune Caius Terentius Arsa endeavoured to circumscribe the consular power, by the formation of a code of laws. (See *Twelve Tables* and *Appius Claudius*.) Although the new laws defined the legal relations of all citizens, yet the government of the state remained in the hands of the aristocracy which was kept totally distinct from the plebeians by the prohibition of intermarriage. This prohibition gave rise to new contests which ended in its abolition. The plebeians likewise obtained, eighty years after, a participation in the honours of the consulship. During these disputes the office of censor was established. Meanwhile, Rome was constantly engaged in petty wars and quarrels with the neighbouring states. That the population might not diminish, freedmen, and even prisoners of war, were admitted into the number of citizens. Rome became altogether a military state; pay was introduced into the Roman armies, which rendered it necessary to impose higher taxes. The city was, at this time, reduced to the brink of destruction, by the Senonian Gauls, who captured and reduced it to ashes, (A. U. 365.) Camillus, (q. v.), however, the saviour of Rome, restored it from its ruins. The first plebeian consul was elected in the year 388, and the plebeians soon participated in all offices—in the dictatorship, in 398; in the censorship, in 403; in the praetorship, in 417; and in the priesthood, in 454 (300 B. C.). A complete political equality of patricians and plebeians existed at the end of this period; internal contests ceased, and, in the same proportion, the power of the state abroad increased, and the splendid period of conquests began. During this period, the manners of the Romans were characterized by the ancient simplicity and rudeness; science and the fine arts were as yet unknown to them; but useful arts, commerce (a treaty of commerce was concluded with the Carthaginians in 409), navigation, and mechanical arts, were cultivated. Agriculture was still the chief source of national wealth.

The first years of the *second period* were yet marked by contests between the plebeians and patricians. Rome was also visited by the plague, which gave rise to the introduction of theatrical shows from Etruria. The Romans now gained several victories over the Gauls in which Titus Manlius Torquatus (see *Manlius*) rendered himself conspicuous. Two laws settled the rate of interest in favour of debtors. From an alliance which had been concluded a few years before with the Samnites (q. v.), a formidable war between the two nations broke out in 411, which lasted till 464, opened the way for the subjugation of all Italy, and laid the foundation of the future greatness of Rome. This war was the heroic age of the Romans; it taught them tactics; it settled their relations with their neighbours, the Latins and Etrurians, the former being completely reduced, and the latter repeatedly humbled; and brought the Romans sometimes into friendly, and sometimes into hostile contact with the distant Lucanians, Apulians, and Umbrians. In this period the principles of their policy towards conquered nations were also developed. After the subjugation of the Samnites, the Romans attempted to secure their authority in Lower Italy, in consequence of which the Tarentines called to their aid (A. U. 473) Pyrrhus king of Epirus, who, notwithstanding his knowledge of the Macedonian art of war, was finally worsted, and obliged (479) to evacuate Italy. Tarentum fell into the hands of the Romans in 482, and soon after all Lower Italy. The fame of Rome extended even to Egypt, the king of which, in 481, sent an embassy to seek for the friendship of the Romans. Authority was maintained among the conquered people chiefly by the establishment of colonies of Roman citizens, who served as garrisons in those cities in which they were placed. Each colony had its own constitution, similar to that of Rome. This colonial system gradually embraced all Italy. For convenience of communication, great military roads were laid out in different directions. Some of the Italian cities and people enjoyed all the rights of Roman citizens (*municipia*); others had the rights of colonies (*jus coloniarum*); the others were either allies (*socii*) or subjects (*dedititii*.) The latter were governed by prefects sent from Rome. Rome had already a navy, and the office of *duumviri navales* was instituted for the general management of naval affairs. The judiciary was improved by the appointment of the pretors, (q. v.,) and the police by that of *curule ædiles* and the *triumviri capitales*. Learning and the arts now began to appear. Fabius Pictor introduced the art of painting into Rome; Lucius Papirius Cursor brought (461) the first dial; and Spurius Carvilius caused a statue of Jupiter to be cast. With the worship of Æculapius the science of medicine came to Rome; the works of Appius and the temple of Concord by Camillus, prove the progress of architecture. But by the side of noble specimens of morality, temperance, integrity, and patriotism, individual examples of luxury, effeminacy, and degeneracy already began to appear.

In the *third period*, Rome made the first advances to the dominion of the world. She maintained, in three wars, a desperate struggle with Carthage, and destroyed her rival. (See *Carthage*, *Hannibal*, *Fabius*, *Scipio*, *Masinissa*, &c.) The first war with Carthage was made for the possession of Sicily, and the dominion of the sea; it lasted twenty-three years, (from 489 to 511 of the building of the city,) and ended with the expulsion of the Carthaginians from Sicily. Rome, made arrogant by success, then deprived them of the island of Sardinia, in the time of peace (517). She next humbled the piratical Illyrians, on the Adriatic sea, and thus appeared as the friend of Greece. Corcyra, Apollonia, and other Greek cities, put themselves under the protection of Rome; the Achæans, Ætolians and Athenians emulated each other in expressions of gratitude. When Carthage endeavoured to indemnify herself in Spain for her former losses, and was compelled by the Romans to promise not to pass the Iberus, (Ebro,) a bloody war broke out with the Cisalpine Gauls, which continued for six years, and resulted in the foundation of the Roman dominion in the north of Italy (about 222 B. C.) Then began the second Punic war. Hannibal commenced the attack, and made Italy the theatre of the war. It continued from 536 to 553. After many bloody battles, Carthage was subdued; but Rome, notwithstanding her great loss of men and the devastation of Italy, came out of the war more powerful than she had entered it, with an acquisition of foreign territory and the dominion of the sea. Without any change of the form of the constitution, the senate had now acquired an almost absolute power. The ambition of universal dominion already inspired the nation. At the end of the second Punic war, Sicily, Sardinia, Corsica, and a part of Spain and Cisalpine Gaul, were Roman provinces; Carthage was entirely dependent upon Rome. On the other hand, the kingdom of Macedonia in the East, with the Grecian republics, composed a political system, very complicated in itself, but first brought into connexion with Rome, after the Illyrian war, and the connexion of Phillip II. with Hannibal. Of the three powers of the first rank,—Syria, Macedonia, and Egypt,—the two first were allied against the latter, which was on friendly terms with Rome. The powers of the second rank—the Ætolian league, the kings of Pergamus, the republic of Rhodes, and other smaller states, such as Athens —were already allies of Rome, and had been leagued with her against Philip (543); the Achæan confederacy, on the contrary, was attached to the Macedonian interest. Hardly was the peace made with Carthage when the war broke out with Philip of Macedonia. In the beginning of this war, the Romans were unfortunate, till Titus Quinctius Flaminius, by his policy and military talents, laid the foundation for the power of Rome in the East. By the decisive battle of Cynocephale, (557,) Philip lost his naval superiority, and his influence over Greece, whose dependence upon Rome was secured by Quinctius granting her freedom. Roman deputies, such as retained Carthage and Numidia in subjection, exercised a supervision in Greece and Macedonia, and interfered in the domestic policy of these states. To the Greeks, particularly to the proud Ætolians, this was the more intolerable, as the Roman army remained in their country three years. The peace with Philip contained the seeds of a greater war with Antiochus, from whom Rome demanded the Grecian cities which Philip had possessed in Asia, and which Antiochus had now occupied. The difficulties began in 558, when Antiochus took possession of the Chersonese; they were increased by Hannibal's flight to the court of that prince (559), and soon broke out into a formal war, in the conduct of which, Antiochus and Hannibal did not agree, the former being unwilling to adopt decisive measures. Antiochus, defeated by sea and land, found himself, after the battle of Magnesia (564) forced to conclude a peace, which obliged him to retire behind the Taurus, and made him altogether dependent upon Rome. At the same time, bloody wars were carried on in Spain and Upper Italy. In 569 the troubles with Philip broke out anew, because he had made some small conquests; but the negociations which were entered into with his son Demetrius, and the death of Philip, (which took place in 575,) delayed the war till 582. The war with Perseus of Macedon, the son of Philip, terminated in the total subjection of the kingdom by the victory of Paulus Æmilius, at Pydna. The conquest of Egypt, by Antiochus Epiphanes, was prevented by the decision of Popilius, the Roman ambassador. After the conquest of Macedonia, Rome openly pursued her plan of universal dominion, and spared no means for attaining it. The division of Egypt was accomplished, and the protection of Syria assumed, which country was thenceforth rendered defenceless. After unparalleled oppressions, Carthage was now to be destroyed. This was accomplished in the third Punic war, which lasted from 604 to 608, when the proud Carthage was destroyed (146 B. C.). At the same time, a new war was carried on in Macedonia, against Andriscus, who had placed himself at the head of the disaffected, but who, in 606, submitted to Metelles. Then commenced the Achæan war, the object of which was the dissolution of the Achæan league. Mummius terminated this war in 608 (146 B. C.), by the destruction of Corinth; Greece and Macedonia were reduced to Roman provinces. Thus had Rome, within the space of 118 years, made herself mistress of the world. The Roman tactics had now become so perfect, that no phalanx could withstand the legions. But the Romans were, as yet, unskilled in naval warfare, and the younger Africanus was the first who carried the arts of conducting a siege to some perfection. Out of Italy, Rome occupied, under the name of provinces, Hither and Thither Spain, (neither of which was entirely reduced,) Africa, (the territory of Carthage,) Sicily, Sardinia, Corsica, Liguria, Cisalpine Gaul, Macedonia, and Achaia. Not only individual opulence, but the public revenue, was greatly increased. The finances of Rome were conducted with the strictest regularity. With the wealth, the cultivation and refinement of the Romans also increased. Their first poets appeared, and the first regular dramas were now exhibited in Rome. Learning flourished after the wars in Greece and Asia. Lucilius wrote satires, and Fabius Pictor and Cato composed the annals of Roman history. The language was developed. The calculation of solar and lunar eclipses, and the construction of water-clocks, and of more accurate sun-dials, became known to the Romans. In the fine arts, the Romans were, as yet, barbarians. After the second Punic war, the ancient purity and simplicity of manners gradually declined. At funerals the cruel combats of gladiators were exhibited; immense sums were spent in public shows; and licentiousness began to prevail. Even in this period laws were enacted against luxury, and the shameless *bacchannalia* were prohibited in 568.

Fourth Period. The wars in Spain, particularly against the Celtiberians and Lusitanians, were prosecuted with vigour. In the peasant Viriathus, the Romans found a formidable enemy. The rapacity of the proconsul Licinius Lucullus (603), and of the pretor Sulpicius Galba (604), caused the war to break out with renewed fury, under the conduct of Viriathus. After his assassination (614), Lusitania was reduced; but, on the other hand, the Numantines compelled the consul Mancinus to a disadvantageous treaty. (See *Numantia.*) Scipio terminated this war in 621; but Northern Spain still remained unsubdued. In the same year, the Romans received from Attalus the kingdom of Pergamus, in Asia, by bequest, and maintained their claims to it against

Aristonicus. With this acquisition, foreign wars ceased for a time; but Rome was agitated with internal commotions, which finally broke out into bloody civil wars. The unlimited power of the senate had created a hateful family aristocracy, which the tribunes of the people resisted, and which produced contests between the aristocratic and democratic parties more fatal than the former disputes between the patricians and plebeians. The contest began with Tiberius Gracchus who, for the relief of the lower orders of the people, demanded a juster distribution of the public lands. He was killed in an insurrection of the people; but the agrarian law remained in full force, and the disturbances still continued. Although the return of Scipio Æmilianus gave new strength to the aristocracy, yet the general insurrection of slaves in Sicily (620—623) was favourable to the democratic party. The tribunes of the people obtained a voice and a seat in the senate: they also endeavoured to make their re-election legal. The disturbances were quieted for a time by removing the chiefs of the popular party, under honourable pretences. During these events, the foundation of the Roman power in Transalpine Gaul was laid by Marcus Fulvius Flaccus, in 626, and as early as 632 the southern part was made a Roman province. In 631, Caius Gracchus was chosen tribune of the people; he renewed the agrarian laws with severer provisions, and gave rise to more dangerous excitements than his brother Tiberius. He endeavoured to make the equestrian order a counterpoise to the power of the senate, and attempted to strengthen his party by the admission of the whole population of Italy to the rights of Roman citizens; but the senate succeeded in depriving him of the favour of the people, and in effecting his ruin. In 633, he was killed in a riot, and the aristocracy took advantage of their victory to abolish the agrarian laws. On the other hand, difficulties arose with the Italian allies, who demanded the privileges of citizenship, and the breaking out of the war was prevented merely by accident. These factions had an injurious effect upon morals, which neither the strictness of the censorship, nor the sumptuary laws, nor the laws against celibacy (which were already become necessary), could control. Rapacity was the prevailing vice of the great, and licentiousness that of the multitude. The enormous wealth of the public treasury produced public luxury, which was soon followed by private luxury, that found ample means for its gratification in the extortions of the governors, and in the presents of foreign princes. The influence of bribery was particularly apparent in the war against Jugurtha (636—648), which was even protracted by it. The end of this bloody war opened to a plebeian, Caius Marius, the way to the highest dignities of the state, by which the aristocracy received a severe blow. He succeeded in overturning the constitution, while the war with the Cimbri, during a new servile war in Sicily, rendered him indispensable to the state. He was consul four years successively. At length, in 654, the storm burst over him, and, after a long struggle, he retired to Asia. (See *Marius.*) From 656 to 663, quiet prevailed, and the provinces enjoyed a short rest. The power of the equestrian order became a new source of abuses. It held the senate in dependence, and could easily oppose all reforms in the provinces, since it had not only the control of the judiciary, but farmed the revenues of the state. The contest which arose between the knights and the senate concerning the judicial power, was ruinous to the state. The knights were deprived of a part of their judicial power by Lucius Drusus, the tribune; but the manner in which this was effected kindled the dangerous social war. He proposed to admit the allies to the rights of citizenship, but his proposition excited so much dissatisfaction that he was murdered. The people of Italy, from the Liris to the Adriatic, now took up arms with the design of throwing off the Roman yoke. The danger was great. The *fasces* were committed to Lucius Julius Cæsar and Publius Rutilius Lupus, and under these consuls were formed the greatest generals of the time—Cn. Pompeius, C. Marius, Cæpio, C. Perpenna, Valerius Messala, Cornelius Sylla, T. Didius, P. Lentulus, P. Licinius, and M. Marcellus. But there were also men of distinguished talents on the other side; and, after the war had been carried on from 653 to 656, with various success and the greatest fury, it was terminated only by conceding the claims of the allies; and Rome thus ceased to be regarded as the exclusive head of the state. The devastations of Mithridates, and the disputes between Sylla and Marius, made this concession necessary. The quarrel between these two distinguished Romans commenced at the beginning of the first Pontic war. (See *Marius*, and *Sylla.*) The senate having given the chief command to Sylla, Marius united himself (656) with the tribune Sulpicius, for the purpose of displacing him from this office. But Sylla, at the head of his army, drove Marius from Rome, restored the dignity of the senate, and hastened to his province, after he had, in order to gain the people, raised his adversary, Cinna, to the consulship. The consequence was, that, during this war (656—659), a new anarchy prevailed in Rome, which became still more terrible after the death of Marius. In 671, the banished Sylla returned to Rome: a terrible civil war was the result, which was ended, in 673, by Sylla's elevation to the dictatorship. Sylla endeavoured to overthrow the democratic party. The attempt of Æmilius Lepidus to oppose him was without success. The war which broke out in Spain, under Sertorius, a leader of the democratic party, was more serious, and was concluded, in 682, by his assassination. At the same time, the frightful war of the gladiators and slaves broke out in Italy, and a new and more dangerous war began with Mithridates in Asia. The pirates were so powerful at this time, that they rendered the seas unsafe with their fleets, and threatened Rome with a famine. Pompey saved the state, however, by conquering first the pirates, and afterwards Mithridates. Asia Minor, Syria and Crete were made Roman provinces; Armenia, Cappadocia, the Bosphorus and Judea became wholly dependent upon Rome, and the Thracian power was broken. No foreign enemy could any longer be dangerous to Rome; but new commotions were constantly agitating her. Some attempts to overturn the constitution of Sylla were indeed frustrated; but, even in 679, Opimius carried a law providing that the tribunes should not be excluded from higher offices, and that the judicial tribunals should be restored to the knights; and Pompey and Crassus, during their consulship in 684, nearly annihilated it by completely restoring the tribunitial power. By this victory of the democratic party, a kind of oligarchy was established, and powerful individuals obtained the direction of affairs. The conspiracy of Catiline (see *Catiline*) had for its object the overthrow of the existing powers, and the elevation of a party from the dregs of the people. Cicero defeated it, and restored internal tranquillity. Nevertheless, the state continued to decline; luxury, introduced by the immense wealth of Asia, had destroyed all the remains of ancient virtue. Selfishness and ambition were the ruling passions of the great. Pompey, who had now returned from Asia, found in the severe Cato a superior, and attached himself to the popular party, in order to prosecute his designs with their assistance. Cæsar's return from Lusitania (694) gave affairs a different turn. He formed with Pompey and Crassus the first triumvirate as it was called, and succeeded (695) to the consulship, which prepared the way for his assumption of the dictatorship. He obtained the province of Gaul for five years, and thus gained an opportunity of making conquests and forming an army. The chiefs of the senate, Cicero and Cato, were banished by the tribune Clodius before his departure; but the triumvirate caused Cicero to be recalled by the tribune Milo, without being able to destroy the power of Clodius. Cæsar accomplished, during his administration in Gaul, the subjugation of that country (696—704). The contest which arose during his absence between himself, Pompey, and Crassus, was settled in 698 by the treaty of Lucca, by which Cæsar obtained his province for five years more, and Pompey and Crassus the consulate for the succeeding year, after which the former was to have Spain and Africa, and the latter Syria, as their respective provinces. In spite of Cato's opposition, this plan was effected; but when Crassus fell, on his expedition against the Parthians, and Pompey, instead of departing to his province, remained at the head of the republic as sole consul, with almost dictatorial power, a civil war was unavoidable. (See *Cæsar*, and *Pompey*.) Instead of obeying the decree of the senate, Cæsar passed the Rubicon, and compelled Pompey to fly from Rome. The civil war broke out, and was ended in 706 at Pharsalia. Cæsar now became dictator, with the most extensive power. His first object was the entire reduction of the party of Pompey, and the restoration of order to Italy. He was assassinated in 710; but his adversaries could not preserve the republic. In 711, a new triumvirate was formed between Octavius, Antony and Lepidus; the object of which was the annihilation of the republican party. For the manner in which they pursued this object, by proscriptions and violence, and for their subsequent divisions, until the battle of Actium rendered Octavius master of the Roman empire, see the articles *Antony*, and *Augustus*. Rome now ceased to be a republic. The principal changes which the Roman constitution underwent during this period, have already been related. Bribery and private interest governed the assemblies of the people; interest and ambition actuated the public officers. The equestrian order now gained great power and immense riches. Marius extended the military system, but discipline was destroyed. The armies fought for their generals rather than for the state. They obeyed whoever paid them. But literature made great progress. To this period belong the poets M. Pacuvius, C. Lucilius, Plautus, Terence, Lucretius and Catullus; the historians Calpurnius Piso, Porcius Cato, Rutilius Rufus, Claudius Quadrigarius, and particularly Cæsar, Sallust, Cornelius Nepos, Hirtius Pansa, &c.; Cicero, the orator and philosopher, and Terentius Varro, the learned grammarian, who likewise wrote upon agriculture. At the close of this period began the golden age of Roman literature and art. The Greeks were imitated with taste and success. Not only the Roman youths went to Greece to complete their education, but learned Grecians flocked to Rome, and were employed in education and instruction. The language reached its highest perfection, and the theatre exhibited its masterpieces. Of the philosophical sects of Greece, the schools of Epicurus and Zeno met with the greatest success. Grecian artists elevated the standard of the arts, and Rome was filled with splendid buildings and the master works of sculpture. In the time of Cæsar and Pompey, the Grecian artists Arcesilaus, Pasiteles, Zopyrus, Criton, Nicolaus Strongylion, and the great lapidary Dioscorides, resided at Rome. But the corruption of morals increased with the increase of luxury; the greatest part of the people, especially of the nobility, was sunk in debaucheries and vices of every description. Laws were of little avail; agriculture and the mechanical arts were left entirely to slaves, who were treated in the most cruel manner. The common people lived, in spite of their poverty, in idleness, and were ready to devote themselves to those who would give them largesses. Every thing was to be obtained by gold.

III. We are next to consider Rome with a monarchical government, under the Cæsars, from the foundation to the division of the empire, from the year of the city 727 to 1148 (or 395 A. D.). This period forms four divisions:

1. Octavius returned to Rome as a conqueror in 725, and for forty-three years remained at the head of the government. He was the first sovereign in Rome without adopting this title. Satisfied with the surname of Augustus, which was given him in 727, he ruled with mildness, retaining the republican forms of government. He united in his own person the offices of consul, tribune, imperator and proconsul in all the provinces, and finally that of "*magister morum*" and *pontifex maximus*. To avoid the appearance of usurpation, he caused the supreme power to be confirmed to him from time to time. The senate acted the part of a council of state. The republican magistracies were retained, but their power was lost: on the other hand, the prefects of the city and of provisions became the most important officers, because upon them depended the public tranquillity. A city militia (*cohortes urbanæ*) and a body-guard (*cohortes prætorianæ*) were formed. The governors of the provinces were paid and limited in their power. Improvements were introduced in the financial system. The distinction between the public treasury and private purse of the emperor, naturally existed at first; but afterwards both were united. The boundaries of the empire were extended, particularly by the addition of Egypt (724), Pannonia (719), Mœsia (725), Rhætia, Vindelicia and Noricum (739), and by the complete subjugation of Northern Spain and Western Gaul (729). On the other hand, the Romans were unsuccessful against the Germans. The successor of Augustus was his

step-son Tiberius (q. v.), from 767 to 790. Under him despotism was established by the tribunals of majesty (*judicia majestatis*). The servility and timidity of the senate in this matter was as criminal as the tyrannical character of the prince, who suffered himself to be guided from 776 to 784 by the monster Sejanus. His successors were Caligula (until 794) and Claudius (until 807); the former a mad tyrant, and the latter a dotard. The conquests in Britain began (796) under Claudius, and Mauritania (795), Lycia (796), Judæa (797), and Thrace (800), were declared provinces. His successor, Nero (from 807 to 821), a hypocritical tyrant, addicted to debauch and cruelty, was the last emperor of the family of Augustus. Under him the greatest part of Britain was made a Roman province, and war was successfully carried on in Armenia and against the Jews. During the disturbances which followed Nero's death, in less than two years, three persons made themselves masters of the throne by force—Galba, Otho and Vitellius. (See the articles.) This period, particularly the reign of Augustus, was the golden age of literature and the arts. Instead of politics, the distinguished men of the empire were engaged in science, and especially in polite literature: they also protected and patronised men of letters: such patrons, for example, were Mæcenas and Agrippa. Augustus and Asinius Pollio founded public libraries. In poetry, the names of Virgil, Ovid, Cornelius Gallus, Cornelius Severus, Tibullus, Propertius, Gratius Faliscus, Manilius, Horace and Phædrus are distinguished; and there were a multitude of epigrammatists. Livy and Dionysius of Halicarnassus wrote their valuable histories. Eloquence necessarily declined, but philosophy and mathematics found both admirers and cultivators. Vitruvius was celebrated on account of his knowledge of architecture, and Hyginus on account of his *Astronomicon*. As a grammarian, M. Verrius Flaccus deserves to be mentioned; geography had a Strabo, and jurisprudence Q. Antistius Labeo, C. Anteius Capito and C. Trebatius Testa. Architecture, sculpture and glyptics also flourished. After the death of Augustus, literature declined, and the style and language degenerated. M. Annæus Lucan, Valerius Flaccus and Persius Flaccus distinguished themselves, however, as poets; Velleius Paterculus, Diodorus Siculus and Valerius Maximus as historians; M. and L. Annæus Seneca as rhetoricians and philosophers; and Aurelius Cornelius Celsus as a physician. Asconius Pedianus wrote commentaries on the writings of Cicero; and in jurisprudence Masurius Sabinus, M. Cocceius Nerva, Cassius Longinus and Sempronius Proculus were eminent. The arts declined; the corruption of manners was increased by debauchery and unnatural passion; foreigners and freedmen were the confidants of the emperor; the soldiers formed a distinct order, and served not the state, but the despots whom they rendered dependent upon themselves.

2. After the fall of Vitellius, Flavius Vespasianus (823) ascended the throne. He restored the empire by introducing order into the finances, promoting public education, reviving discipline, and abolishing the tribunals of majesty. Under his government, the war with Civilis the Batavian broke out, and the conquest of Britain by Agricola was completed. Vespasian reigned till 832, his excellent son Titus till 834, and the brother and successor of the latter, Domitian, a perfect tyrant, until 849. Under his reign arose the war with Decebalus, the king of the Dacians, who stirred up the wars of the Marcomanni, Quadi and Jazyges, from 839 to 843, which proved so unfortunate to the Romans. He was murdered, and was followed by several celebrated sovereigns. Nerva (until 851) abolished the reign of terror, diminished the taxes, and encouraged industry; Trajan (until 870) restored, as far as possible, a free constitution, and enlarged the empire by fortunate wars against the Dacians, Armenians and Parthians; and Adrian (to 891) improved the internal condition of the empire, and the discipline of the soldiery. Rome was happy under the peaceful government of Antoninus Pius (until 914); under that of Marcus Aurelius, or Antoninus, the philosopher (until 933), great disasters and bloody wars with the Catti, Parthians, and especially the Marcomanni, disturbed the empire; but his wisdom healed all wounds. With him (180, A. D.) ended the prosperity of Rome. The constitution of the state was now a limited monarchy, founded upon civil freedom. The offices of state became in part mere titles of honour; and, on the other hand, a great number of court offices were instituted, which were continually usurping power. Italy was divided into four provinces, which were governed by men of consular rank. The *edictum perpetuum* effected great changes in the administration of justice, and the imperial commands were continually encroaching upon the decrees of the senate. In the military department, likewise, great alterations had taken place, particularly a different division of the troops. Literature, particularly poetry and eloquence, were on the decline; but the emperors endeavoured to promote learning, by the collection of libraries, by the erection of public halls, and by supporting instructors. The poets of this period are Silius Italicus, Papinius Statius, Juvenal and Martial; the historians are Tacitus, Appián, Florus, Justin, Curtius, Arrian, Suetonius and Plutarch; the principal orator was Pliny the younger; Epictetus and Marcus Aurelius were distinguished as Stoic philosophers; and besides these there were many New Platonists; Galen and Scribonius Largus were the chief physicians. Frontinus wrote upon hydraulic architecture. Pliny the elder upon the productions of nature and art, Columella upon agriculture and gardening, and Polyænus and Frontinus upon military stratagems; Gellius was celebrated for his knowledge of antiquity; in geography Ptolemy and Antoninus, author of a journal of travels to Britain, were eminent; and Quinctilian was distinguished in rhetoric: Salvius Julianus, Aburnus Valens, Sextus Cæcilius Africanus, Terentius Clemens, Vinidius Verus, and Junius Mauritianus, were celebrated jurists; and Sextus Pomponius, C. Velusius Mæcianus, Q. Cervidius Scævola, and Ulpius Marcellus, were yet more distinguished authors on the subject of jurisprudence.

3. From this time the decline of the Roman empire was constantly accelerated. Commodus, the son of Marcus Aurelius (from 933 to 945) was a monster. He purchased peace of the Marcomanni, and his generals fought successfully in Dacia and Britain. Great commotions followed his death. Pertinax reigned only two months, and Marcus Didius Julianus, who purchased the empire, as the highest bidder, for an equal period; the army in Illyria then chose Septimius Severus emperor, and the one in Syria, Pescenninus Niger. The former maintained his claims, and reigned till 965. He

kept in check the Parthians and Britons. Caracalla (till 970) was a tyrant; his murderer, Macrinus, succeeded, and reigned till 971; Heliogabalus, a shameless voluptuary, till 975; and Alexander Severus, an excellent prince, till 988. After the latter, his murderer, Maximin the Thracian (till 991), exercised a military despotism. While he was carrying on the war in Germany with success, the senate chose the elder Gordian emperor, and, after the death of Gordian, Maximus Pupienus and Clodius Balbinus. The pretorians murdered them, and raised the younger Gordian to the throne; and he reigned until 997, and Marcus Julius Philippus till 1002. Then succeeded Trajanus Decius (slain by the Goths, 1004); Trebonianus Gallus (till 1006); Æmilius Æmilianus (three months); Pulius Licinius Valerianus (1011); Publius Licinius Gallianus (until 1021), under whom almost all the governors raised themselves to the rank of emperors, and the Germans and Persians triumphed over the Romans; M. Aurelius Claudius (until 1023), who overthrew the Alemanni and Goths; Domitius Aurelianus (until 1028), who recovered all the lost countries, took Zenobia prisoner, and voluntarily evacuated Dacia; M. Claudius Tacitus (until 1029); Probus (until 1035), a warlike and prudent prince; M. Aurelius Carus (until 1036); and Marcus Aurelius Numerianus (until 1037), an accomplished and gentle prince: Dioclesian succeeded him (until 1058); he appointed M. Valerius Maximian his colleague, and united Caius Galerius, Maximian associating Flavius Constantius Chlorus, in the empire, as assistants: they distributed the empire among themselves, without dividing it, and not only resisted the barbarians, but extended the empire in the East to the Tigris; the two emperors retired from the government (1058), and Galerius succeeded in the East, and Constantius in the West. Galerius appointed two assistants (Cæsars), Flavius Severus and Maximin. Constantius died in 1059, and left his dominions to his son Constantine, who, in 1076, succeeded to the whole empire, by a series of perfidious artifices. In this period, the constitution remained nominally the same, but a military despotism controlled every thing. The soldiery made and unmade emperors. In the administration of justice, the emperors decided by their constitutions, so called. The corruption of manners, the weakness of the empire, oppressive taxes, the poverty of the people, the tyranny of the rulers, and the encroachments of the barbarians, continually increased. Literature and taste declined; language and style degenerated. Some individuals studied the ancients, and took them for models. Among the poets, Terentianus Maurus and Nemesianus are worthy of notice; among the historians, Dio Cassius and Herodian are of acknowledged merit; and the *Scriptores Historiæ Augustæ*, Spartianus, Capitolinus, Trebellius Pollio, Vopiscus, Lampridius, and Vulcatius Gallicanus, must be mentioned. Apuleius wrote romances, and Ælian compiled anecdotes. Mamertinus, Nagarius, Magnus Ausonius, &c., panegyrists of the emperors, and Latinus Drepanius, Eumenius and Pacatus composed rhetorical works. Latinus Solinus the grammarian wrote an abridgment of Pliny's Natural History, under the title of *Polyhistor;* Serenus Samonicus a didactic poem upon medicine; Palladius a work upon agriculture; and Censorinus the grammarian a learned chronological work *De Die natali*. Papinian, Ulpian, Julius Paulus and Herennius Modestinus were eminent jurists. Art was extinct. The Christian religion was already widely extended.

4. Constantine the Great (reigned until 1099) embraced Christianity, in 1064, from political motives, and it thus became the predominant religion. The imperial residence was removed to Constantinople; the empire was divided anew, and the civil and military power were separated. After the death of Constantine, his three sons, Constantine, Constantius and Constans, divided the empire, until Constantius, in 1106, united the whole after a war of twelve years' duration. He reigned first with Cæsar Constantius Gallus, and afterwards with the Cæsar Julian, until 1114, maintaining constant wars with the barbarians. His successor was Julian (until 1116), an able and virtuous prince, called the *Apostate*, because he relapsed into heathenism. After him Jovian reigned until 1117, Valentinian I., in the West, until 1128, Valens, in the East, until 1131, in whose reign the Huns entered Europe; Gratian and Valentinian II. succeeded in the West; the former reigned until 1136, the latter until 1145, and Theodosius until 1147 in the East, and until 1148 over the whole empire. He divided the empire (395 A. D.), which henceforth remained separated, into the Eastern and Western Roman empires. (See the history of the former under the head *Byzantine Empire*, and of the latter under *Western Empire*.) To this period belong the following authors: Claudian the poet, Ammianus Marcellinus, Aurelius Victor, Eutropius, and Zosimus, historians. Symmachus was celebrated as a rhetorician, and Themistius as a sophist. Vegetius wrote upon the science of war, and Macrobius was a successful follower of Varro and Gellius. Victor and Sextus Rufus wrote upon the topography of Rome. From this time the Roman language continually degenerated by the intermixture of barbarous words, and the corruption of taste, until at length it wholly disappeared in the Romanic languages, and all learning perished. For the earlier periods of Roman history, see Niebuhr's *Roman History*, Ferguson's *History of the Roman Republic*, Wacksmuth's *Early History of Rome* (in German 1819). For the history of the empire, see the works of Tillemont, Crevier, Gibbon, and that of Hübbler (3 vols., Freyburg, 1803).

Ancient Rome, although visited for a thousand years by various calamities, is still the most majestic of cities. The charm of beauty and dignity still lingers around the ruins of ancient, as well as the splendid structures of modern Rome, and brilliant recollections of every age are connected with the monuments which meet the passing traveller at every step. The characteristics of ancient and modern times are no where so distinctly contrasted as within the walls of Rome. Ancient Rome was built upon several hills, which are now scarcely discoverable, on account of the vast quantities of rubbish with which the valleys are filled. (See the preceding historical sketch.) The eastern bank of the Tiber was so low as to subject the city to frequent inundations. The extent and population were very different at different times. We speak here of the most flourishing period. Vopiscus, in his life of Aurelian, relates that the circumference of the city, after its last enlargement by that emperor, was 50,000 paces, for which we must probably read 15,000, as Pliny estimates the circumference, just before the reign of Aurelian, at 13,000 paces, and the accounts of modern travellers agree with this statement. The inhabitants at that time may have amounted to about 3,000,000. The number of inhabitants enjoying the rights of citizenship was never more than 300,000. Romulus surrounded the city with a wall, or rather with an earthen mound. Of the four gates which he built—the Porta Carmentalis, the Pandana or the Saturnia, the Roman gate, and the Mugionia—the Carmentalis alone remains. The wall ran from mount Palatine, at the foot of mount Aventine, to the Tiber; one part of it then extended between the Tiber and the Capitoline hill, and on the other side separated the Palatine from the Cœlian, Esquiline, Viminal, and Quirinal hills, and finally terminated at the capitol. The second, or the Servian wall, was much more extensive, and embraced all the above mentioned hills, on the southern and eastern sides; ran round under mount Aventine to the Tiber; thence passed to the west side of the river, where, being continued in the form of a triangle, as far as the summit of Janiculum, it separated this from the other hills; and then, proceeding to the southern end of the island of the Tiber in a direct course, embraced the whole body of the buildings beyond the river. On the north side of the city, the old walls of Romulus were mostly preserved; but the old wall terminated at the summit of Quirinalis, while the Servian extended to its easternmost extremity, and then ran round the other hills towards the east. The Pincian hill, Campus Martius, and the Vatican hill, therefore, lay entirely outside of it. The third, or Aurelian wall, likewise included all these parts. It ran from the north-eastern extremity of Quirinalis, northwardly; embraced the Campus Martius, which it separated from the Pincian hill; extended beyond the latter to the river; enclosed, beyond the river, the Vatican, in a large bend; and then joined the old wall, which reached to the summit of Janiculum; so that the island of the Tiber was now contained within the limits of the city. In so large a circuit the number of gates must have been considerable. Pliny enumerates thirty-seven, of which several yet remain, but under different names. Ancient Rome had several bridges, of which some are still passable. The lowest and oldest bridge was the Pons Sublicius, which led from mount Aventine into the valley below Janiculum, and is no longer standing. The second led from the forum to Janiculum, and was called Pons Senatorius, because the solemn procession of the senate passed over it, when the Sybilline books were to be carried from Janiculum. It was the first stone bridge in Rome, and still exists in ruins under the name of Mary's bridge (Ponte Rotto). Two bridges led to the island in the Tiber, one from the east, and the other from the west side; the former was called Pons Fabricius (now Ponte di Quattro Capi), and the latter Pons Cestius (now Bartholomew's bridge). A fourth bridge, Pons Janiculensis (now Ponte Sisto), led from the Campus Martius, near the theatre of Marcellus, to Janiculum. The ruins of the fifth, Pons Vaticanus, or Triumphalis, may be seen near the hospital of S. Spirito, and led from the Campus Martius to the Vatican. The Ælian bridge (Pons Ælius; now the beautiful bridge of St Angelo) led to the Moles Adriani. Beyond the wall, and above the Pincian hill, was the seventh bridge, Pons Milvius, (now Ponte Molle), built by Æmilius Scaurus, after the time of Sylla. The streets of Rome, even after the city was rebuilt under Nero, were very irregular. The public squares, of which there were a great number, were distinguished into *areæ*, squares in front of the palaces and temples; *campi*, open places, covered with grass, which served for popular assemblies, public processions, for the exercise of the youth in arms, and for the burning of the dead bodies; and *fora*, which were paved, and served either for the assembling of the people, for the transaction of public affairs, or for the sale of goods, or for ornament. Among the latter, the Forum Romanum (see *Forum*), and Campus Martius were the most celebrated. The earliest division of Rome was made by Servius Tullius; he divided it into four quarters, which he called Tribus urbanæ; they were the Tribus Suburbana, Collina, Esquilina and Palatina. This division continued till the reign of Augustus, who divided the city into fourteen regions, according to which ancient Rome is generally described: 1st. Porta Capena; 2d. Cœli Montium; 3d. Isis et Serapis, or Moneta; 4th. Via Sacra, afterwards Templum Pacis; 5th. Esquilina cum colle et turri Viminali; 6th. Alta Semita; 7th. Via Lata; 8th. Forum Romanum; 9th. Circus Flaminius; 10th. Palatium; 11th. Circus Maximus; 12th. Piscina Publica; 13th. Aventinus; 14th. Trans Tiberim. The temples, theatres, amphitheatres, circuses. naumachæ, porticoes, basilicæ, baths, gardens, triumphal arches, columns, sewers, aqueducts, sepulchres, &c., are the principal public buildings and monuments. For the capitol, the citadel, and principal temple of Rome, consecrated to Jupiter Capitolinus, and the Pantheon, see the articles. Next to these, the following were the most remarkable; the temple of Æsculapius, in the island of the Tiber, which was consecrated to that god, now the church of St Bartholomew; the temple of Antonius and Faustina, in the Via Sacra, now the church of S. Lorenzo in Miranda; the magnificent temple of Apollo, which Augustus built of white marble, on the Palatine, in which were preserved the Sybilline books (it contained, besides many other curiosities, a splendid library, and served as a place of resort to the poets, who here recited their works); the temple of the Cæsars (Templum Cæsarum), which contained the statues of the Cæsars, the heads of all which were struck off at once by lightning; the temple of the Dioscuri, in the Forum Romanum, under the Palatine hill, opposite the church of Sta. Maria Liberatrice, built in honour of the two youths, who, in the battle of the lake Regillus, assisted the Romans in gaining the victory, and were supposed to be Castor and Pollux; the temple of the goddess Seia, under the Palatine, built by Servius Tullius, which Nero enclosed in his golden palace, and caused to be covered with transparent Cappadocian marble; the temple of the confederacy, under the name of *Templum Dianæ commune*, which the Latin cities built in union, by the persuasion of Servius Tullius, and upon a monument in which were inscribed the articles of the confederation (this temple was situated upon the Aventine hill, near the church of Sta. Prisca); the temple of Janus, upon the island of the Tiber, near the modern Sistine bridge, one of the most beautiful of ancient Rome; the temple of the Flavian family, in which Domitian was buried, still standing on the Piazza Grimana; the temple of Hercules and the Muses, built in the ninth region by Fulvius Nobilior, who placed here the images of the Muses, brought by him from Ambracia; the temple of Honour and Virtue, in the first region, built by Marcus Marcellus, and ornamented by the Marcelli with the monuments of their family; the temple of Jupiter Stator, on the declivity of the Palatine hill, and vowed by Romulus on an occasion when his soldiers began to flee; the temple of Jupiter Tonans, built by Augustus with much splendour on the slope of the Capitoline hill; the beautiful temple of the Lycaonian hill, on the island of the Tiber, which thence received the name of Lycaonia; two temples of Isis and of Serapis; the temple of Juno Moneta, built upon the spot where the house of Manlius was torn down, on the fortifications of the Capitoline hill, because the awakening of the garrison on the attack of the Gauls was attributed to this goddess; the temple of Liberty, built by Gracchus in the thirteenth region, and restored by Asinius Pollio, who there established the first public library; the temple of Mars, on the east side of the Appian Way, before the Porta Capena, in the first region, in which the senate gave audience to generals who claimed the honour of a triumph, and likewise to foreign ambassadors (the church delle Palme stands upon its ruins); the temple of Mars Ultor, built by Augustus with great splendour, when he recovered the eagles of the legions that had been conquered by the Parthians; the splendid temple of Minerva, which Domitian built in the forum of Nerva; another temple of the same goddess, which Pompey built in the Campus Martius, and which Augustus covered with bronze; the temple of Peace, once the richest and most beautiful temple in Rome, built by Vespasian, in the Via Sacra, in the fourth region, which contained the treasures of the temple of Jerusalem, a splendid library, and other curiosities, but was burnt under the reign of Commodus; the temple of the goddess Salus, which was painted by Fabius Pictor, the first Roman painter; the temple of Saturn, built by Tarquin the younger, which was afterwards used for the treasury and the archives of Rome; the temple of the Sun, which Aurelian erected at an enormous expense, and of which some ruins still exist; several temples of Venus, and among them, particularly, the magnificent temple of Venus Genitrix, which Cæsar caused to be built to her as the origin of his family, and the temple of Venus and Roma, of which Adrian himself designed the model; the temple of Vesta, one of the oldest and most remarkable, built by Numa on the southern summit of the Palatine: in it were contained the *ancilia*, or sacred shields, and the palladium, sacred fire, &c. Of the palaces, the imperial was the most distinguished. It was built by Augustus upon the Palatine hill, and gave the name to the tenth region of the city. The front was on the Via Sacra, and before it were planted oaks. Within the palace lay the temple of Vesta, and also that of Apollo, which Augustus endeavoured to make the chief temple in Rome. The succeeding emperors extended and beautified this palace. Nero burnt it, but rebuilt it, of such extent that it not only embraced all the Palatine hill, but also the plain between that and the Cœlian and Esquiline, and even a part of these hills, in its limits. He ornamented it so richly with precious stones, gold, silver, statues, paintings, and treasures of every description, that it justly received the name of *domus aurea* (golden house). The following emperors not only stripped it of its ornaments, but Vespasian and Titus caused some parts of it to be pulled down. Domitian afterwards restored the main building. In the reign of Commodus, a great part of it was burnt; but it was restored by him and his successors. In the time of Theodoric, it needed still further repairs; but this huge edifice subsequently became a ruin, and on its site now stand the Farnese palace and gardens, and the Villa Spada. Among the theatres, those of Pompey, Cornelius Balbus, and Marcellus, were the most celebrated. Pompey built that which bore his name, after his return from Greece, and adorned it with the most beautiful Grecian statues. An aqueduct brought water into every part of it. In order to protect it from destruction, he built within its precincts a splendid temple to Venus Victrix. It was capable of containing 40,000 persons. Caligula first finished it, but Tiberius had previously restored the scenes: Claudius, still later, did the same thing, and the gothic king Theodoric caused it to be repaired. A few remains of it are yet to be distinguished near the palace Ursini. The theatre of Balbus, the favourite of Augustus, was situated in the Campus Martius. The theatre of Marcellus was built by Augustus in memory of his nephew Marcellus. It accommodated 22,000 spectators, and was repaired by Vespasian. Some beautiful ruins of it are still to be seen. Among the amphitheatres, that of Titus was the most remarkable. (See *Coliseum;* and for the circus maximus and the circus of Caracalla, see *Circus.*) Among the remaining circuses, the following deserve to be mentioned: the circus Agonalis, in the ninth region; the circus Aurelius, in the gardens of Heliogabalus, in the fifth; the circus Flaminius, in the ninth, one of the largest and most remarkable, upon the ruins of which the church of Sta. Caterina de' Funari and the palace Maffei now stand; the circus of Flora in the sixth region, upon the same spot which the Piazza Grimana now occupies, where the licentious *Floralia* were celebrated; lastly, the circus of Nero, in the fourteenth region, near the modern church of St Peter; and the circus of Sallust, the ruins of which are still visible near the Colline gate. Without stopping to describe the Naumachiæ (q. v.), we will proceed to the porticoes or colonnades. Among these are the Porticus Argonautarum, also called Porticus Neptuni, Agrippæ, or Vipsanii, which Marcus Vipsanius Agrippa built in 729, and adorned with paintings, representing the history of the Argonauts: it was situated in the Campus Martius, surrounded by a laurel grove, and the marble pillars, still visible in the Piazza di Pietra, probably belonged to it; the splendid portico of Europa in the Campus Martius, supposed to have been built by Augustus, and containing the history of Europa; the Porticus Hecatonstylon, in the ninth region, so called from its having 100 pillars; the portico of Livia, in the third region, built by Augustus, and demolished by Nero; the portico of Metellus, founded by Metellus Macedonicus, between the temple of Apollo, built by him; and that of Juno, in the ninth region, and ornamented with statues, brought by him from Macedonia; the Porticus Milliarensis, or of the thousand columns, the ruins of which are yet to be seen in the gardens of the duke of Muti; the portico of Octavia, built by Augustus; and the portico of Pola, built by Marcus Vipsanius Agrippa; the portico of Pompey, called the Corinthian, from its pillars being of that order of architecture; Pompey built it near his theatre, and ornamented it with golden tapestry: finally, the portico of the sun (*Porticus Solis*), which was built by Aurelian. Among the Basilicæ (q. v.), one of the most beautiful was the Æmilian, on the northerly side of the Forum Romanum, built by Paulus Æmilius. We will also mention the Basilica Caii, or Lucii, on the Esquiline hill, the splendid Basilica Julia, on the southern side of the Forum Romanum, built by Julius Cæsar, and the Basilica Portia, which was the oldest, and was built by Cato the Censor. Of the public baths, some of which equalled in extent large palaces, and were ornamented with still greater splendour, there have been enumerated about twenty-two warm, and 856 cold, besides 880 private baths. Mæcenas and Agrippa founded the first public baths, which were afterwards surpassed by those of Caracalla, and these, in their turn, by those of Dioclesian, vestiges of which remain till this day. Rome was likewise rich in magnificent gardens. The gardens of Lucullus, in the ninth region, hold the first rank; after these the gardens of Asinius Pollio, Julius Cæsar, Mæcenas, Heliogabalus, &c. Of the triumphal arches, the most celebrated are, that of Constantine, the ruins of which are yet seen; that of Drusus, in the Appian Way, of which the modern gate of St Sebastian is said to have been built; that of Gallienus, and those of Severus and Titus, which are yet in good preservation; the former in the Forum, and the latter in the Vicus Sandalarius. Among the columns, the most beautiful was Trajan's pillar, 118 feet in height, still standing. Instead of the statue of that emperor, which it formerly bore, Sixtus V. placed upon it a statue of St Peter, in bronze, twenty-three feet in height. The bass-reliefs, with which it is ornamented, represent the exploits of Trajan, and contain about 2500 half and whole human figures. A flight of stairs, within the pillar, leads to its summit. The *columna rostrata*, which Duillius erected in commemoration of his victory over the Carthaginian fleet, and the pillars of Antoninus and Aurelian, are still standing. The sewers (*cloacæ*), by means of which the filth and superfluous water of the city were conveyed into the Tiber, are among the most remarkable architectural works of ancient Rome; they are subterranean canals, of from ten to sixteen feet in height, and from twelve to fourteen in width, and, although constructed in the earliest ages of the city, are of such an indestructible solidity, that several earthquakes have but slightly injured them; and some parts of them are in perfect preservation. (Concerning the aqueducts of Rome, of which about twenty have been enumerated, see *Aqueduct*.) Among the magnificent sepulchral monuments, the mausoleum of Augustus and the Septizonium of Septimius Severus surpassed all others in splendour. This city was also rich in splendid private buildings, and in the treasures of art, with which not only the public places and streets, but likewise the residences and gardens of the principal citizens, were ornamented, and of which but comparatively few vestiges have survived the ravages of time. See Burton's *Antiquities of Rome* (Oxford, 1821); Nardini's *Roma Antica* (Nibby's edition, with annotations, plans, &c., Rome, 1820, 4 vols., 8vo.); Venuti's *Descrizione topographica delle Antichità di Roma* (3d edition, with Piali's notes, Rome, 1824, 2 vols. quarto, with seventy-two engravings).

Modern Rome; the capital of the States of the Church, the residence of the pope, and for centuries the capital of Christendom, at present the capital of the world of the arts (41° 53′ 45″ N. lat.; 12° 28′ E. lon.) It is about thirteen miles in circuit, and is divided by the Tiber into two parts. The churches, palaces, villas, squares, streets, fountains, aqueducts, antiquities, ruins,—in short, every thing proclaims the ancient majesty and present greatness of the city. Among the churches, St Peter's is the most conspicuous, and is, perhaps, the most beautiful building in the world. Bramante began it; Sangallo and Peruzzi succeeded him; but Michael Angelo, who erected its immense dome, which is 450 feet high to the top of the cross, designed the greatest part. Many other architects were afterwards employed upon it; Maderno finished the front and the two towers. The erection of this edifice, from 1506 to 1614, cost 45,000,000 Roman crowns. Before we arrive at this beautiful temple, the eye is attracted by the beautiful square in front of it, surrounded by a magnificent colonade by Bernini, and ornamented by an Ægyptian obelisk, together with two splendid fountains. Upon entering the vestibule, Giotti's mosaic, la Navicella, is seen. Under the portico, opposite the great door, is Bernini's great bass-relief representing Christ commanding Peter to feed his sheep; and at the ends of the portico are the equestrian statues of Constantine by Bernini, and of Charlemagne by Cornachini. The union of these master works has an indescribable effect. The harmony and proportion which prevail in the interior of this august temple are such, that, immense as it is, the eye distinguishes all the parts without confusion or difficulty. When each object is minutely examined, we are astonished at its magnitude, so much more considerable than appears at first sight. The immense canopy of the high altar, supported by four bronze pillars of 120 feet in height, particularly attracts the attention. The dome is the boldest work of modern architecture. The cross thereon is 450 feet above the pavement. The lantern affords the most beautiful prospect of the city and the surrounding country. The splendid mosaics, tombs, paintings, frescoes, works in marble, gilded bronze and stucco, the new sacristy, a beautiful piece of architecture, but not in unison with the rest, deserve separate consideration. The two most beautiful churches in Rome next to St Peter's are the St John's of the Lateran, and the Santa Maria Maggiore. The former, built by Constantine the Great, is the parochial church of the pope; it therefore takes precedence of all others, and is called *Omnium urbis et orbis ecclesiarum mater et caput* (the head and mother of all churches of the city and the world.) In it is celebrated the coronation of the popes. It contains several pillars of granite, *verde antico*, and gilt bronze; the twelve apostles by Rusconi and Legros; and the beautiful chapel of Corsini, which is unequalled in its proportions, built by Alexander Galilei. The altar-piece is a mosaic from a painting of Guido, and the beautiful porphyry sarcophagus, which is under the statue of Clement XII., was found in the Pantheon, and is supposed to have contained the ashes of M. Agrippa. The nave of the church of Santa Maria Maggiore is supported by forty Ionic pillars of Grecian marble, which were taken from a temple of Juno Lucina: the ceiling was gilded with the first gold brought from Peru. We are here struck with admiration at the mosaics; the high altar, consisting of an antique porphyry sarcophagus; the chapel of Sixtus V., built from the designs of Fontana, and richly ornamented; the chapel of Paul V., adorned with marble and precious stones; the chapel of Sforza, by Michael Angelo; and the sepulchres of Guglielmo della Porta and Algardi. In the square before the front is a Corinthian column, which is considered a master-piece of its kind. The largest church in Rome next to St Peter's was the Basilica di San Paolo delle Mura, on the road to Ostia, burnt a few years since. (See *Paul, Churches of St*). The church of S. Lorenzo, without the city, possesses some rare monuments of antiquity. The church of San Pietro in Vincola contains the celebrated statue of Moses, by Michael Angelo. The church of St Agnes, in the place Navona, begun by Rainaldi and completed by Borromini, is one of the most highly ornamented, particularly with modern sculpture. Here is the admirable relief of Algardi, representing St Agnes deprived of her clothes, and covered only with her hair. The Basilica of St Sebastian, before the Porta Capena, contains the statue of the dying saint, by Giorgetti, a pupil of Algardi, and the master of Bernini. Under these churches are the catacombs, which formerly served as places of burial. In the church of St Agnes, before the Porta Pia, among many other beautiful columns, are four of porphyry, belonging to the high altar, and considered the most beautiful in Rome. In a small chapel is a bust of the Saviour by Michael Angelo, a masterpiece. In the church of St Augustine, there is a picture by Raphael, representing the prophet Isaiah, and an Ascension, by Lanfranco. The monastery has a rich library, called the Angelica, and increased by the library of cardinal Passionei. The following churches also deserve to be mentioned, on account of their architecture and works of art; the churches of St Ignatius, St Cecilia, S. Andrea della Valle, S. Andrea del Noviziato, the Pantheon (also called la Rotonda), in which Raphael, Annibal Caracci, Mengs, &c., are interred. All the 364 churches of Rome contain monuments of art or antiquity. Among the palaces, the principal is the Vatican, an immense pile, in which the most valuable monuments of antiquity, and the works of the greatest modern masters, are preserved. Here are the museum Pio-Clementinum, established by Clement XIV., and enlarged by Pius VI., and the celebrated library of the Vatican. The treasures carried away by the French have been restored. Among the paintings of this palace, the most beautiful are Raphael's frescoes in the *stanze* and the *logge*. The principal oil paintings are in the *appartamento* Borgia, which also contains the Transfiguration, by Raphael. In the Sixtine chapel is the Last Judgment of Michael Angelo. The popes have chosen the palace of Monte Cavallo, or the Quirinal palace, with its extensive and beautiful gardens, for their usual residence, on account of its healthy air and fine prospect. The Lateran palace, which Sixtus V. had rebuilt, by Fontana, was changed, in 1693, into an alms-house. Besides these, the following are celebrated: the palace della Cancelleria, the palace de' Conservatori, the palace of St Mark, the buildings of the academy, &c. Among the private palaces, the Barberini is the largest; it was built by Bernini, in a beautiful style. Here are the Magdalen of Guido, one of the finest works of Caravaggio, the paintings of the great hall, a masterpiece of Peter of Cortona, and other valuable paintings. Of the works of sculpture, the Sleeping Fawn, now in Munich, was formerly here; the masterly group representing Atalante and Meleager, a Juno, a sick Satyr, by Bernini, the bust of cardinal Barberini, by the same artist, and the busts of Marius, Sylla, and Scipio Africanus, are in this palace. The library is calculated to contain 60,000 printed books and 9000 manuscripts; a cabinet of medals, bronzes, and precious stones, is also connected with the library. The Borghese palace, erected by Bramante, is extensive, and in a beautiful style; the colonnade of the court is splendid. This palace contains a large collection of paintings, rare works of sculpture, valuable tables, and utensils of rich workmanship, of red porphyry, alabaster, and other materials. The upper hall is unrivalled; the great landscapes of Vernet, with which it is adorned, are so true to nature, that, upon entering, one imagines himself transported into real scenes. The palace Albani, the situation of which is remarkably fine, possesses a valuable library, a great number of paintings, and a collection of designs by Caracci, Polydoro, Lanfranco, Spagnoletto, Cignani, and others. The palace Altieri, one of the largest in Rome, is in a simple style of architecture, and contains rare manuscripts, medals, paintings, &c., and valuable furniture. In the palace Colonna there is a rich collection of paintings by the first masters; all the rooms are decorated with them, and particularly the gallery, which is one of the finest in Europe. In the gardens are ruins of the baths of Constantine and those of the temple of Sol. The Aldobrandini palace contains the finest monument of ancient painting—the Aldobrandine Wedding, a fresco purchased by Pius VII., in 1818, in which the design is admirable. The great Farnese palace, begun from designs of Sangallo, and completed under the direction of Michael Angelo, is celebrated both for its beauty and its treasures of art. The Caracci and Domenichino have immortalized themselves by their frescoes in its gallery. The Farnese Hercules, the masterly Flora, and the urn of Cæcilia Metella, formerly adorned the court; and in the palace itself was the beautiful group of the Farnese bull. But when the king of Naples inherited the Farnese estate, these statues, with other works of art, were carried to Naples, where they now adorn the palace degli Studj. Not far off is the palace Corsini, where queen Christina lived and died in 1689. It contains a valuable library and gallery. The palace Giustiniani also had a gallery adorned with numerous valuable statues and works of sculpture; its principal ornaments were the celebrated statue of Minerva, the finest of that goddess now known, and the bass-relief of Amalthea suckling Jupiter. These treasures were nominally bought by Napoleon, and are now in Paris. The paintings are chiefly in the possession of the king of Prussia. In the palace Spada is the statue of Pompey, at the foot of which Cæsar fell under the daggers of his murderers. We have yet to mention the palace Costaguti, on account of its fine frescoes; Chigi, for its beautiful architecture, its paintings, and library; Mattei, for its numerous statues, reliefs, and ancient inscriptions; the palace of Pamfili, built by Borromini, for its splendid paintings and internal magnificence; that of Pamfili in the square of Navona, with a library and gallery; Rospigliosi, upon the Quirinal hill, &c. Among the palaces of Rome, which bear the name of *villas*, is the Villa Medici, on the Pincian mount, on which were formerly situated the splendid gardens of Lucullus: it once contained a vast number of masterpieces of every kind; but the grand-dukes Leopold and Ferdinand have removed the finest works (among them, the group of Niobe by Scopas) to Florence. This palace, however, is yet very worthy of being visited. Under the portico of the Villa Negroni are the two fine statues of Sylla and Marius, seated on the *sella curulis*. In the extensive garden, which is three miles in circuit, some beautiful fresco paintings have been found in the ruins of some of the houses. The Villa Mattei, on the Cœlian mount, contains a splendid collection of statues. The Villa Ludovisi, on the Pincian mount, not far from the ruins of the circus and the gardens of Sallust, is one and a half miles in circuit, and contains valuable monuments of art, particularly the Aurora of Guercino, an ancient group of the senator Papirius and his mother (or rather of Phædra and Hippolytus), another of Arria and Pætus, and Bernini's rape of Proserpine. The Villa Borghese, near Rome, has a fine, but an unhealthy situation. The greatest part of the city, and the environs as far as Frascati and Tivoli, are visible from it. It has a garden, with a park three miles in circuit. This palace was ornamented in its interior, and furnished with so much richness and elegance, that it might have been considered the first edifice in Rome, next to the capitol, particularly for its fine collection of statues. The most remarkable among them were the Fighting Gladiator; Silenus and a Faun; Seneca, in black marble, or rather a slave at the baths; Camilius; the Hermaphrodite; the Centaur and Cupid; two Fauns playing on the flute; Ceres; an Ægyptian; a statue of the younger Nero; the busts of Lucius Verus, Alexander, Faustina, and Verus; various relievoes, among which was one representing Curtius; an urn, on which were represented the festival of Bacchus; another supported by the Graces; two horns of plenty, &c. The greatest part of these has not been restored from Paris. The exterior is ornamented with ancient reliefs. The Villa Pamfili, before the Porta di San Pancrazio, also called Belrespiro, has an agreeable situation, and is seven miles in circumference. The architecture is by Algardi, but has been censured by connoisseurs. In the interior there are some fine specimens of sculpture. Full descriptions of this and and of the Villa Borghese have been published. The Villa Albani, upon an eminence which commands Tivilo and the Sabina, is a temple of taste and splendour. The cardinal Alexander Albani expended immense sums upon it, and, during the space of fifty years, collected a splendid cabinet. The ceiling of the gallery was painted by Mengs, and is a model of elegance. The Villa Lante and the Villa Corsini deserve to be mentioned on account of their fine prospects. The Villa Doria (formerly Algiati), in which Raphael lived, contains three frescoe paintings of this great master. The Villa Farnese contains the remains of the palace of the Roman emperors. The capitol contains so many and such magnificent objects of every description, that it is impossible to enumerate them here. We must be satisfied with mentioning the equestrian statue of Marcus Aurelius, before the palace; the Captive Kings, in the court; the *columna rostrata;* and within, the colossal statue of Pyrrhus, the tomb of Severus; the Centaurs, of basalt; the beautiful alabaster pillars; the masterpiece in mosaic, which once belonged to cardinal Furietti, representing three doves on the edge of a vessel filled with water, which is described by Pliny. The fountains are among the principal ornaments of the squares in Rome. The fountain in the Piazza Navona, the most splendid of them all, has been particularly admired; it is surmounted by an obelisk, and ornamented by four colossal statues, which represent the four principal rivers in the world. The fountain of Paul V., near the church di San Pietro in Montorio, is in bad taste, but furnishes such a body of water, that several mills are carried by it. The fountain di Termini is adorned with three reliefs, representing Moses striking water from the rock, and with a colossal statue of that prophet, with two Ægyptian lions in basalt. The splendid fountain of Trevi supplies the best water, which it receives through an ancient aqueduct. Among the streets, the Strada Felice and the Strada Pia, which cross each other, are the most remarkable; among the bridges, that of St Angelo (formerly Pons Ælius), 300 feet in length; and, among the gates, the Porta del Popolo (formerly Porta Flaminia). Of ancient monuments, the following yet remain: the Pantheon, the Coliseum, the column of Trajan, that of Antonine, the amphitheatre of Vespasian; the mausoleum of Augustus, the mausoleum of Adrian (now the fortress of St Angelo); the triumphal arches of Severus, Titus, Constantine, Janus, Nero and Drusus; the ruins of the temple of Jupiter Stator, of Jupiter Tonans, of Concordia, of Pax, of Antoninus and Faustina, of the sun and moon, of Romulus, of Romulus and Remus, of Pallas, of Fortuna Virilis, of Fortuna Muliebris, of Virtue, of Bacchus, of Vesta, of Minerva Medica, and of Venus and Cupid; the remains of the baths of Dioclesian, of Caracalla and Titus, &c.; the ruins of the theatre of Pompey, near the Curia Pompeii, where Cæsar was murdered, and those of the theatre of Marcellus; the ruins of the old forum (now called Campo Vaccino); the remains of the old bridges; the circus maximus; the circus of Caracalla; the house of Cicero; the Curia Hostilia; the trophies of Marius; the portico of Philip and Octavius; the country house and tower of Mæcenas; the Claudian aqueduct; the monuments of the family of Aruns, of the Scipios, of Metella (called Capo di Bove); the prison of Jugurtha (Carcere Mamertino), in which St Peter was imprisoned; the monument of Caius Cestius, which is entirely uninjured, in form of a pyramid, near which the Protestants are buried; the Cloaca Maxima, built by Tarquin, &c. Besides the obelisk near the Porta del Popolo, that raised in the pontificate of Pius VI., on mount Cavallo, is deserving of notice. The principal collections of literature and the arts have already been noticed; but the Museo Kircheliano deserves to be particularly mentioned: there are, besides, many private collections and monastic libraries, which contain many valuable works. Such treasures, especially in the arts, make Rome the great school of painters, statuaries and architects, and a place of pilgrimage to all lovers of the arts; and there are here innumerable *studj* of painting and sculpture. Roman art seems to have received a new impulse. The academy of San Luca was established solely for the art of painting; and there are also many literary institutions in the city. The principal college of the university, erected by the popes Innocent IV. (1245), Boniface VIII. (1303), and Clement VI. (1311), is called *della Sapienza*, from its motto, *Initium sapentiæ timor Domini.* It is a splendid building, in which there are eight professors in theology, six in law, eight in medicine, five in philosophy, one in the fine arts, and four in the Hebrew, Greek, Syriac and Arabic languages. Of the other colleges, in which instruction is given in the sciences and in languages, the Collegium de propoganda Fide is particularly remarkable for its rich library and its printing-office, which is worthy of being visited, and which contains works in thirty ancient and modern languages; besides these are the Collegium Clementinum, the Collegium Romanum, the Collegium Nazarenum, institutions for instruction in the Oriental languages, the Hungarian and the German college, &c. Among the academies and learned societies in Rome, the most important are the academies of Roman history, of geography, of ecclesiastical history, of Roman antiquities, of the Arcadians, &c. The two principal theatres are those of Alberti and Argentina, in which operas and ballets are exhibited; the theatres della Valle and di Capranica are of the second rank, in which comic operas, comedies, and sometimes tragedies, are performed. La Paze and La Palla Corda are of the lowest rank, in which the opera buffa and farces are acted for the amusement of the populace. But they are opened only for a short time during the year. The festivals in Rome most worthy of notice are the grand procession on Corpus Christi day, and the ceremonies of Passion week in the Sistine chapel, where is performed the immortal Miserere of Leo Allegri; the illumination of the cross on St Peter's, the illumination of the Pauline chapel, &c.; besides these, there are the illumination of the immense dome of St Peter's, upon the day of that saint, the great fire-works, or the Girandola of 4500 rockets, which are discharged from the castle of St Angelo, upon the anniversary of the pope's coronation, and which produce an indescribable effect, on account of the vicinity of the river, in whose waters the lights are reflected. (For the *Carnival*, see the article.) The climate of Rome from July to October is unhealthy, and the foreigner is then exposed to dangerous fevers. This *aria cattiva* renders whole quarters of the city uninhabitable during these months. It appears to extend gradually, and to be about to take full possession of the eternal city. (See *Campagna di Roma*, *Malaria*, and *Pontine Marshes*.) The south wind, known by the name of *sirocco*, affects the elasticity of the muscles without being dangerous. Consumption has in Rome a malignant character, communicating itself to the healthy by means of articles of clothing and furniture, and spreading among occupants of the same house with the diseased person, even without such adventitious aid. It is even communicated by books. The water is dfferent in different parts of the city. The fountain of Trevi furnishes the most wholesome water; that from the *thermæ* of Dioclesian and the fountain Gianicola is unwholesome, and banished from all tables. In Rome, the hours are counted up to twenty-four, as is the case in many of the other Italian cities. The most frequented promenade is the Corso. From twenty-two to twenty-four o'clock (five to seven), it is filled with pedestrians and equipages. In 1824, Rome contained 136,300 inhabitants; 35,900 houses; 346 churches, eighty-one of them parish churches; thirty monasteries, and upwards of 120 palaces. In 1830, the population was 144,542, among which were thirty-five bishops and archbishops, 1490 priests, 1983 monks, 2390 nuns, and 10,000 Jews residing on the left bank of the Tiber, in a quarter called Ghetto. The view of the majestic ruins; the solemn grandeur of the churches and palaces; the recollections of the past; the religious customs; the magic and almost melancholy tranquillity in the splendid villas; the enjoyment of the endless treasures of art,—all this raises the mind to a high state of excitement. See Fea's *Descrizione;* the splendid *Vedute di Roma*, by Piranesi (2 vols., folio, 138 plates); *Description of Rome*, by Platner, Bunsen, and Gerhard, with a Sketch of the History of the old, and of the Restoration of the new City, by Niebuhr, with plans and views, in two volumes (in German); *Rome in the 19th Century.* For other works on the subject, see the article *Italy*, *Travels in.*

ROMAN ÆRA, and CALENDAR. See *Calendar*, and *Epoch.*

ROMAN LANGUAGE. The old Latin and the Roman languages are different. From the first—traces of which are yet to be found in the laws of the twelve tables, and which became obsolete so early that, in the time of Cicero, the hymns of the salii (priests of Mars) were unintelligible—the Roman language was formed, posterior to the adoption of the laws of the twelve tables, not without being influenced by the Greek. It was divided into the *sexmo urbanus*, *rusticus*, and *perigrinus.* The first of these dialects was spoken in Rome itself, the second in the country, and the third generally in the provinces. If we possessed the *Origines* of the elder Cato, we should be able to decide with certainty who were the earliest inhabitants of Italy, and what was the origin of the native Latin language. We are able only to discover from the scattered and disconnected accounts of the ancients, that the Œnotrii (who were probably of Arcadian, or, rather of Pelasgian origin), the Ausonii (among these are included the Osci and Volsci), the Sabelli or Sabines, the Tyrhenii (Etrurians and Tuscans, from whom originated the augury and the priesthood of the Romans), and, lastly, the Umbri, are to be considered as the principal aborigines of Italy, to whom the old Latins, or the *aborigines*, as they were called, joined themselves. With these the Trojans under Æneas were incorporated; but the number of these was too small to have any decisive influence upon the Latin language, although these foreigners at length obtained dominion over the whole country. The Greek colonies are more important in this view, viz. the Achaians, Locrians, and Dorians, who inhabited Middle and Lower Italy, and extended their customs, and even the common use of their language, beyond their own settlements in this country. The Latin must, therefore, necessarily have been much influenced by the language of these colonies. Besides the old Italian language, we read of the Etrurian, the Oscian, and the Volscian, which, perhaps, were only different dialects. The Oscian maintained itself still later among the Atellani. After the conquest of the south of Italy and Sicily, of Macedonia and Achaia, the Greek language must have been better known to the Romans; and thus the influence of the Greek language upon the formation of the Roman came to be of more importance. We likewise find, in the derivation of many words, as well as in the syntax of this language, frequent traces of Greek origin; and, indeed, the oldest Roman authors (for example, Plautus, Terence, Lucretius, and even Catullus), make use of many Greek idioms. The Romanic languages (see *Romanic*) are formed, for the most part, from the dialect of the country and the provinces.

ROMAN LITERATURE. The history of Roman literature is generally divided into four periods:—1. From the earliest times till Cicero; 2. till the death of Augustus, usually called the *golden age*, to which, however, some earlier writers are considered to belong; 3. till the death of Trajan, called the *silver age;* 4. till the subjugation of Rome by the Goths, called the *brazen age*.

Poetry, in this language, as in all others, preceded prose; but Roman prose was not of native growth; it was an exotic, to which Greek models first gave birth, and which rhetoric and the schools afterwards improved (see *Rhetoricians*); for native poetry in Rome was blighted in the bud by Grecian influence. To this belonged the Saturnian songs. Among the first essays in poetry were the *Atellanæ Fabulæ*, and the succeeding attempts were likewise, with few exceptions, dramatic. Livius Andronicus, a Greek captive of Tarentum, first gave the Odyssey to the Romans, about 500 years after the foundation of the city, and made them acquainted with the dramatical riches of the Greeks by means of Latin translations, or imitations of Greek tragedies and comedies. He was followed by Nævius, who wrote a historical poem on the first Punic war, the two tragic writers Pacuvius and Attius, and by Ennius, the first epic poet, and the founder of Roman poetry, whom Cicero and Virgil esteemed very highly. Ennius introduced the Greek hexameters, and wrote the Roman annals, in eighteen books, &c. Contemporary with him was Plautus, of whose pieces twenty-one are now extant. His power was greatest in low comedy; he possessed humour, wit, and a genuine comic language. Next followed Cæcilius, of whose works we are acquainted with the titles and fragments of forty-five pieces, and Terence, a successful imitator of Menander and others, who was distinguished by the truth and delicacy of his dialogue, his finished style, and the regular disposition of his Greek character pieces. These three comic writers took the new comedy of the Greeks as their model (*Comœdia palliata*). On the other hand, Afranius, with a few others, introduced Roman manners upon the stage (*Comœdia togata*). Soon after him, Lucilius discovered a talent for satire, of which he was the father among the Romans. The Romans, after this period, had no distinguished dramatic writers; their pieces were mostly translations or imitations of Grecian works. Of the *mimæ* (comic monodramas) of Laberius and Syrus, we know too little to assign them a definite place; but they are celebrated. The later tragic writers, likewise, of the Augustan age, Asinius Pollio, Varius with his Thyestes, and Ovid with his Medea, are praised; but it is easy to imagine the causes which must have contributed to prevent tragedy from flourishing on the Roman stage. We need only to remember the kings led in triumph, and left to perish in prison, the gladiatorial games, and the combats of wild beasts. Among a people who took delight in such scenes, we could not expect to find a relish for the tamer excitement and moral influence of tragic spectacles. The only specimen of the tragic poetry of a later age which is preserved to us, is the ten tragedies under the name of Annæus Seneca, but which are, not without reason, ascribed to several authors. They are rude declamations, without nature or truth, which originated from the schools of the rhetoricians; and their bombast could please only the most uncultivated minds. Lucretius, who took a new path among the earlier poets of Rome, wrote a philosophical poem, in six books, concerning the nature of things, after the system of Epicurus, which he adorned with a true poetic colouring. He took a different course from many scientific poets among the Greeks, and is an animated delineator of nature, full of strength and originality, but not without hardness and obscurity. Catullus was distinguished in a different department—in lyric poetry, in elegy, and in epigrams. He had much real wit and delicacy of feeling, but, like most of the amorous and satirical poets of the ancients, paid too little regard to decency of expression, which is easily explained by the relative condition of the two sexes at that time. Much purer and more graceful are the works of Tibullus, to whom we may, with Quinctilian, adjudge the first rank among elegiac poets.

With the age of Augustus, and the loss of liberty, a new spirit appeared in Roman literature. Augustus himself and Mæcenas were the patrons of poetic talent. The first of the poets thus patronised is Virgil, who, in his Æneid, represents the landing of Æneas and the foundation of his dominion in Latium. Although the poet himself directed this work to be destroyed, on account of its imperfect state, it is a noble monument of his wish to create for his contemporaries a new Iliad; and, though he has fallen short of his model, he cannot be denied the praise of patriotic feeling, refined taste, and highly poetical language. More perfect, of its kind, is his poem on agriculture (Georgica), which, in the form of a didactic poem, and in a highly finished style, exhibits his views and feelings respecting rural life. His earlier Eclogues, or pastorals, manifest the same love for nature and a country life. If we recognise in Virgil the first epic and didactic poet of the Romans, Horace is the favourite of the lyric muse, and the priest of the muses, although one cannot judge with certainty concerning his originality, after the loss of his Grecian models; yet his odes are often founded upon national subjects, and then he discovers strong feelings, expressed in a manner becoming a Roman. Many of his odes are patriotic, and others breathe a most charming grace. This poet is also eminent in satire, a species of writing original with the Romans, and which appears to have had a decisive influence on the character of their literature. In most of his epodes and epistles, he touches, with a playful ease and great versatility, upon the ridiculous rather than the criminal, although the latter was not altogether excluded from his satire. In the Augustan age, Propertius and Ovid are among the elegiac poets whom we still possess. In Propertius a certain dignity appears in the midst of his habitual sensuality, although he was often forced in his thoughts and expressions. The most fruitful poetic talent, and the greatest ease of versification, cannot be denied to Ovid; he only indulged too much in his fertility of invention, and was often unmanly in his elegiac complaints. The most characteristic of his poems are the *Fasti*, or the poetical description of the Roman festivals, and their origin; the least pleasing are, perhaps, his *Heroides*, or heroic epistles, of which he is the inventor. They are too monotonous, and too much filled with amorous complaints, to have either dignity or truth; they are rather to be considered as rhetorical exercises. Of the other poets belonging to this age there is little to be said. Some esteemed elegiac writers, such as Pedo Albinovanus and Cornelius Gallus, are almost entirely lost to us. A poem upon Ætna, attributed to Cornelius Severus, who is praised by Quinctilian, has little inventive power; and the didactic poem of Gratius Faliscus upon the chase *(Cynegeticon)*, and that of Manlius upon astronomy, some passages excepted, are more valued for their materials than their manner, which, though inferior, resembles the productions of the Alexandrian school of Greek poetry.

The third age, after the death of Augustus, begins with Phædrus, an imitator of Æsop, who has more merit, in regard to style, than invention and manner. The degeneracy of Roman poetry is displayed in the harsh and obscure Persius. He and the later Juvenal expressed their indignation at the corruption of the age with unrestrained severity, but have more moral than poetical value. In the principal writers of the later poetry—Lucan, who returned to the historical epic in his versification of the civil war between Cæsar and Pompey, and the bombastic Statius, who wrote the Thebaid and the beginning of the Achilleis, in verse, to say nothing of the minor poets—we find a universal barrenness of invention, and a coldness, which vainly endeavours to kindle itself and its hearers by the fire of rhetoric. These poets had long since lost all poetic feeling, and even the love of republican freedom. With such a corrupt taste as that of the Romans, poets like the pompous Statius, or the wanton epigrammatist Martial, to whom we cannot deny wit and fertility of invention, could alone be successful. Lucan, however, with all his defects of plan and unworthy adulation, sometimes exhibits great elevation of sentiment, vigour of expression, and a happy delineation of character. Valerius Flaccus, who described the Argonautic expedition in verse, in imitation of Apollonius Rhodius, endeavoured to shine by his learning, rather than by his originality and freshness of colouring, and Silius Italicus, a great admirer of Virgil, who selected the second Punic war, as the subject of a heroic poem, is merely a historic poet. In the fourth period, Roman literature sunk to a still lower state. The twenty-four fables of Arvienus, or Arvianus, are in a stiff and forced style; on the other hand, the poem of Nemesianus, on the pleasures of the chase, and the seven eclogues of Calpurnius, have some pretensions to purity and ease of style. Ausonius, in his epigrams and idyls (so called), and particularly in his poems on the Moselle, forms as it were the line of division between the ancient and the modern world; Claudian appears almost a miracle in this brazen age. Although not free from rhetorical and epigrammatical excrescences, and from the desire of displaying his learning, he is still far above his age, and often approaches to a graceful style. We conclude this part of the subject with Rutilius Numantianus, whose voyage to Gaul, in elegiac measure, is not without merit, and with two Christian poets, Prudentius and Sedulius, in whose writings we find hardly any thing but modern features and the first germs of the church songs. In the Roman prose literature, which is, on the whole, of a higher character than the poetical, eloquence, history, philosophy and jurisprudence are the principal departments. After the Romans had entered Greece as conquerors, and began to pay more attention to learning, and particularly after they became sensible of the political importance of eloquence, the Greeks were necessary to their conquerors, as teachers of rhetoric, and of the Greek language and literature, although in this period they were twice banished from Rome. (See *Rhetoricians*, and *Grammarians.)* Theoretical instruction was connected with the practice of declamations, as a preparation for public speaking, as forensic eloquence was always the object of ambition during the republic. Of their orators we know many merely by name and by the reputation which they enjoyed. To this class belong Cornelius Cethegus, Tiberius Gracchus, Cotta, Sulpicius, but particularly Licinius Crassus, Antonius, Hortensius, and even Cæsar himself. Cicero not only acquired the most splendid fame in eloquence, the finest models of which we possess in the fifty-nine orations of his yet extant, but also appears as a teacher in his rhetorical works, and in general had a most important part in founding Roman prose literature. In the age of Augustus, after the death of the last champion of Roman liberty, free eloquence necessarily became silent; yet the works of this, and even of later periods, were more or less imbued with the old spirit. The panegyric of Pliny the younger upon Trajan may be considered as the last note of Roman eloquence: the author was distinguished in Rome as a forensic orator. We can best judge of the fallen state of eloquence by examining the works of Fronto, and later orators (the panegyrists), in imitation of Pliny. Quinctilian, a contemporary of Pliny, is to be regarded as the last stay of rhetoric, both by instruction and his own example. We have under his name nineteen greater and 145 smaller declamations. But his merit is greater as a rhetorician and grammarian. In his twelve books *De Institutione oratorica*, he explains the characteristics of the best models, and at the same time lays down the best rules. Cicero, Cæsar, and Terentius Varro, in the most flourishing ages of Roman literature, had, by their grammatical writings, contributed to promote a scientific study of the language, and to give it thereby a settled form. Varro, the most learned philologist and antiquarian of his age, wrote a work upon the Latin language, in twenty-four books, of which only six remain entire. In a rhetorical view, the declamations *(controversiæ* and *suasoriæ)* of Marcus Seneca, and particularly the valuable dialogue On the Causes of the Decline of Eloquence, which has been attributed by most authors to Quinctilian, must be named. Later grammarians, or teachers of language and literature of the age of the Antonines, are Aulus Gellius, Censorinus, Nonius Marcellus, Pomponius Festus, Macrobius, Donatus and Priscianus, who are valuable for their grammatical information, their commentaries upon more ancient authors, and their preservation of fragments of them. The first historical writings were merely details of events, preserved in the annals of the high priest *(pontifex maximus)*, upon a tablet in his house, and the catalogue of the consuls, with a notice of the most remarkable events, recorded in the temple of Juno Moneta *(libri lintei)*. Fabius Pictor, Albinus Posthumius, the elder Cato, Cœlius Fannius, Valerius of Antium, and some others, were the first historians among the Romans, but without any pretensions to skill in the historical art. Great authors first appeared in the most splendid age of Rome. The spirit, the beautiful simplicity and the judicious style of Julius Cæsar, in his Commentaries on the Gallic and Civil Wars, carried on by himself, have always been admired. The style of Sallust is sometimes forced, but he displays great care in his narrative and in his delineation of character, with such richness of thought and depth of observation, that he may not disadvantageously be compared with his model Thucydides. If we except the lost universal history of Trogus Pompeius, Livy embraces the widest field among the Roman historians, and deserves to be called perfect in narration and style, although some have attributed to him a certain Patavinity (the provincial dialect of his native city, Patavium.) His history begins with the arrival of Æneas in Italy, and reaches to the year of Rome 744; but a few books only are extant. Cornelius Nepos stands next to these models of historical writing, with his lives of distinguished generals, at least for purity of style. It is to be lamented that his principal historical work is lost. Under the oppression of despotism, even history, which had hitherto been so well sustained by the Romans, degenerated: this appears from the forced and declamatory style of Velleius, from whom we possess a short sketch of Roman history, in which he indulges in the grossest flattery. Florus is still more to be condemned: he wrote an abridgment of Roman history; but his style is bombastic, and his adulation disgraceful. Valerius Maximus, in his memoirs of memorable men, is a mere compiler and collector of anecdotes. Suetonius, besides his rhetorical and grammatical works, wrote the lives of the emperors, which are interesting from their contents. Tacitus elevated himself above a degenerate age by his truly Roman spirit, his depth of thought, and power of expression, which has been often imitated, but seldom with success. It may be said, with truth, that in him the poet, the philosopher and the historian are united.

After Trajan, we meet no great authors; but Greek literature again asserted its claims, and Roman history was treated of by Greek authors. It is perhaps owing to Justin's abridgment, that we have lost the general history of Trogus Pompeius, in forty-four books. So great was the ignorance of Roman history under the later emperors, that Eutropius was ordered by the emperor Valens to write a short sketch of it. Of Aurelius Victor little need be said, and we cannot greatly lament the loss of his principal work upon the origin of the Roman people, which extended only through one year after the foundation of Rome. Ammianus Marcellinus is of superior merit, and, although his style is somewhat barbarous, contains interesting views, and displays a sound judgment. The six authors of the imperial history *(Scriptores Historiæ Augustæ)*, Spartianus, Capitolinus, Trebellius, Vopiscus, Gallicanus and Lampridius, deserve little praise.

The Romans distinguished themselves in philosophy only by spreading the doctrines of the Greek philosophers in a popular language; and the most eminent statesmen, in the most flourishing periods of Rome, were friends and admirers of philosophy: among the earlier Romans, Lælius, Scipio Africanus the younger, and Lucullus, deserve to be mentioned. Of the lofty spirit of Lucretius, although he embraced an odious system, and the principles of Horace, who called Epicureanism an *insane wisdom*, we have already spoken; but Cicero, by the introduction of the more elevated moral philosophy of the Greeks, rendered the most important service to the intellectual cultivation of his countrymen. He did not wander in the labyrinths of speculation, but he clung to philosophy in prosperity and adversity, and taught it in a classical language. Originally a follower of Plato, he often adopted the ethical lessons of the Stoics, or, when their excessive austerity repelled him, embraced those of Aristotle. The doctrines of Epicurus he rejected as injurious to men, and especially in their relation of citizens. His works also afford much information in regard to the history of ancient philosophy; for example, his Tusculan questions. Philosophy, although sometimes persecuted by the emperors, as it had been earlier by Cato the elder, always found admirers at Rome, and almost every school had its adherents there; but it was more the subject of conversation in the schools and in the world, than of writings. The old academy and the school of Epicurus were at first the most popular; but oppression turned men to Stoicism, which, with its pompous apothegms, influenced some of the poets also, as Lucan, for example. The philosopher Annæus Seneca, in the age of Nero, of whom, besides other works, we possess twelve philosophical treatises, is distinguished for his artificial subtleties and glittering antitheses; but his writings contain many excellent thoughts, finely expressed. In the fourth period of Roman literature, we shall only mention Apuleius. The most known of his productions is the Golden Ass. He was of the sect of the new Platonists; and even in the pleasing tale of Psyche, we find traces of the Platonic philosophy. The epistolary style is connected with eloquence, and Roman literature contains some collections of epistles worthy of imitation. The letters of Cicero are mostly addressed to the greatest men of his age, on passing events, and are written with purity, and elegance, and simplicity. They contain authentic materials for the history of the time, and are the last memorials of the republic. The letters of Pliny the younger are written with taste and elegance, and give us a pleasing picture of their author; but they are too artificial, and appear to owe their existence less to any real occasion for writing than to the wish of appearing as an author. The twenty-four letters of Annæus Seneca to Lucilius relate chiefly to the philosophical system of the Stoics, and are more worthy of attention for their matter, than their manner, which partakes of the common faults of his style. We have yet to notice the letters of Symmachus, about the end of the fourth century, and those of the still later Apollinarius Sidonius, who was also known as a poet. The former are not unsuccessful imitations of Pliny the younger; the latter are marked by the faults of their age, but are interesting for their contents. With the poets are connected the mythological authors of the Romans. The Roman worship was in a great measure similar to that of the Greeks, but by no means entirely the same, as many have supposed: the heroic mythology of the Greeks was introduced into Rome by the poets, although it had no connexion with the national traditions. The Roman mythological writers, therefore, derived their knowledge mostly from Greek sources, and have little that is peculiar or original. The domestic religion of the Romans is to be learned from their antiquarian and historical authors. Hyginus, whose age we cannot accurately determine, left a collection of 277 mythological stories, which are, perhaps, the outlines of ancient tragedies. A poetical astronomy of the same author illustrates the constellations celebrated in poetry. The age of Fulgentius, by whom we have three books of mythological tables, is equally uncertain. Petronius, a contemporary of Nero, may most properly be mentioned here, as he is connected with the poets by his *Satyricon*, in which he describes the corruption of his age with wit and vivacity, and by his poetical pieces interspersed through that work. In mathematics, the Greeks had laid the foundation for a scientific geometry and astronomy, and medicine opened a wide field for their inventive spirit. In all these departments, the Romans were not much distinguished. Among the mathematical authors, Vitruvius is the first, both in time and merit. He was also an architect; and his work on architecture is still highly esteemed. Frontinus wrote upon aqueducts, Vegetius upon the military art, (the application of mathematics to the art of war could not fail to find favour among the Romans;) and after him Firmicus Maternus wrote a Mathesis; but this is, in reality, a treatise on astrology, as was also the work of Julius Obsequens on prodigies. Pomponius Mela and Vibius Sequester are worthy of being mentioned as geographers. The latter gives a list of the names of rivers, seas, mountains, forests, &c. Tacitus, by his description of ancient Germany, may be included under this head. Physicians were first esteemed among the Romans, after the time of Cæsar and Augustus; and the eight books of Celsus on medicine, which form only a part of a large Encyclopedia, are very important, both on account of their contents and their style. Æmilius Macer and Aulus Apuleius (not the Apuleius before mentioned) wrote concerning the qualities of plants. We also possess some unimportant treatises on medicine by Scribonius Largus and Marcellus Empiricus; and there is still extant a poem on the subject of this science by Serenus Sammoniacus, a favourite of the emperor Severus. Several agricultural works of the Romans are entirely lost to us. There is still extant a work on agriculture, which bears the name of Cato the elder: and the three books of the learned Varro on husbandry are very important and instructive. The works of Columella and Palladius on agriculture, are partly written in verse and deserve commendation. A miserably written work on the art of cookery is ascribed to the notorious *gourmand* Apicius.—Among the polyhistors is Pliny the elder, who wrote a work on natural history, in which he at the same time treated of cosmography and geography, medicine and the arts, with great erudition, but yet in a stiff style. He has given us an example of what the Romans might have done, with their great advantages, for the extension of human knowledge. Solinus made an abridgement of this work. Finally Marcianus Capella, in the fifth century, wrote, in barbarous language, a sort of Encyclopedia, under the name of *Satyricon*, (on account of the variety of its contents,) in which he treated of several of the sciences, with their most important principles.

On a review of Roman literature, we find that it continued to flourish only for a short time, from Cicero till the death of Trajan, that the prose reached a higher degree of excellence than poetry, in which various departments obtained various success, and that notwithstanding the merits of the Romans in art and literature, the Greeks excelled them. Perhaps their literature, at least the poetry, would have attained a greater elevation, if they had imitated less, and sought for original ideas in domestic scenes.

In jurisprudence alone did Roman literature acquire an entirely peculiar character, and an elevation which it has maintained down to the latest times, and which has enabled it to exert a powerful influence on all the refined nations of modern Europe. See *Civil Law*.

See Manso, *On the Characteristics of Roman Literature* (in German, Breslau, 1818); Cavriana, *Delle Scienze, Lettere ed Arti dei Romani dalla Fondazione di Roma fino al Augusto*, (Mantua, 1822, 2 vols.); Dunlop's *History of Roman Literature* (3 vols. 1828).

ROMAN SCHOOL. See *Italy;* division, *Italian Art.*

ROMILLY, SIR SAMUEL, an eminent lawyer, was the son of a jeweller, of French extraction, born in London, in 1757. He received a private education, and was placed in the office of a solicitor, which he quitted to study for the bar, to which he was called in 1783. For some years his practice was chiefly confined to draughts in equity; but he gradually rose to distinction in the court of chancery, in which he ultimately took the lead, being equally distinguished by his profound legal information, and logical and forcible eloquence. His general politics agreeing with those of the whigs, he was, during the short administration of Mr Fox and Lord Grenville (1806), appointed solicitor-general, and knighted. When his party went out of office, he remained in parliament, where he became distinguished by his talent in debate, and particularly by the eloquence with which he pleaded the necessity of a revision of the criminal code, with a view to the limitation of capital punishment, and a more appropriate regulation of the scale of penalties. On this subject he also composed a very able pamphlet—Observations on the Criminal Law of England (1810)—and to his exertions may be traced the final determination of the executive to the reforms and condensation of the various acts in regard to crime, which have since taken place under the superintendence of Sir R. Peel. Sir Samuel Romilly also published Objections to the Creation of a Vice-Chancellor (1812); and was in the height of popularity and reputation, when a nervous disorder, produced by grief at the death of his wife, to whom he was devotedly attached, deprived him of reason, and in a fit of temporary frenzy, he terminated his useful and philanthropic existence, November 2, 1818. A collection of his speeches, with a Memoir of his Life, by H. Peters, was published in 1820. B. Constant published his *Eloge*, (Paris, 1819).

ROMULUS was the founder and first king of Rome. According to tradition, his mother was Rhea Sylvia, a daughter of Numitor, king of Alba, and one of the priestesses of Vesta, who were employed in preserving the fire sacred to this goddess, and were bound to spend their lives in strict chastity. She was devoted to the service of Vesta, by her uncle Amulius, who had deprived her father of his throne, and wished to prevent her from having posterity who might dispossess him of his usurped crown. But the royal maid forgot her vow of chastity, and male twins were the fruit of her clandestine amour. In order to escape the horrible punishment denounced by the law against those vestals who violated their vows, Rhea Sylvia gave out that Mars, the god of war, was the father of her children. This artifice saved the mother, and a fortunate accident, her children, who were exposed by command of Amulius in a wild and desert country on the banks of the Tiber. Here a she wolf is said to have found them, and to have suckled them until chance brought thither a countryman, Faustulus by name, who took them home and educated them. With him Romulus and Remus spent their youth, exercising themselves in the chase, and sometimes in rapine. The younger, Remus, was taken prisoner by the servants of Amulius, and his courageous brother collected a small band of enterprising companions, with whom he not only freed his brother, but likewise deprived Amulius of his usurped throne, and reinstated his old grandfather Numitor in his dominions. After the termination of this exploit, Romulus, in connexion with his brother, resolved to build a city. The gods, it is said, during a solemn sacrifice, pointed out the proper site, by the flight of seven eagles. Thus Rome was founded in the year 752 (according to others 754) B. C. The unanimity which had heretofore prevailed between the two brothers, ended with this enterprise: either from ambition, or a sudden burst of anger, Romulus imbrued his hands in his brother's blood. According to another tradition, Remus fled from the anger of his brother, beyond the Alps, and founded Rheims. The small number of friends who had followed Romulus were by no means sufficient to people his city; he saw himself, therefore, compelled to make it a place of refuge for every houseless exile. Men enough were thereby gained; but the Roman citizens soon wanted women, and their proposals for the daughters of the neighbouring cities were rejected by the fathers of the maidens, who looked with an envious eye on the increase of this city. On this account Romulus instituted a religious festival, to which he invited the Sabines (see the article *Sabines*), with their wives and daughters. They came; but in the midst of the festival, the unarmed strangers were suddenly attacked, and deprived of their wives and daughters, and every Roman hastened to provide himself with a female companion. The two states thus became engaged in war; but the entreaties of the ravished females, who threw themselves between the contending parties, at length effected a peace, and Rome gained by her union with the Sabines, an important addition. Many successful wars, which always ended in additions of population and territory to the infant state, confirmed and extended its power. Romulus was strict and arbitrary; too much so, perhaps, for his subjects; and his sudden disappearance naturally excited the conjecture that he fell by the hand of a malcontent. According to tradition, he ascended to heaven into the company of the gods, after he had completed the work of founding the eternal city; and, until the introduction of Christianity, Rome worshipped its founder in temples expressly dedicated to him. It is likewise possible that he was struck by lightning; for his disappearance is said to have happened during a thunderstorm, while he was without the city, near the marshes of Caprea, reviewing his army. Romulus reigned about thirty-seven years, and was about fifty years of age; and the rude, but, considering the time and circumstances, the appropriate laws and ordinances, which he gave his people, bear witness of his capacity as a ruler. When Romulus died, Rome, according to a census which he caused to be made a short time before his death, is said to have contained between 3000 and 4000 men capable of bearing arms. See *Rome.*

RONA, OR NORTH RONA; an island in the northern ocean, sixteen leagues from the Butt of Lewis, and considered as the most north-westerly part of Europe. It belongs to the parish of Barvas, county of Ross, and is inhabited by one family. It is only about a mile in length, and half a mile in breadth. Macculloch, in his work on the Highlands and Islands of Scotland, has given an interesting description of this lonely place. Its produce is corn, butter, cheese, wild fowl, and feathers; and there are a few sheep. Near the centre of the island is a chapel, dedicated to St Ronan. Four leagues eastward of this island is the rock of Sulisker, about a quarter of a mile in circumference, noted for the abundance and variety of sea-fowl by which it is frequented.

RONA; the name of an island and islet in the Hebrides. See *Hebrides.*

RONALDSHAY, NORTH AND SOUTH. See *Orkney Islands.*

RONCESVALLES (French *Roncevaux*); a valley in Navarre, between Pampeluna and St Jean de Port, where, according to tradition, the rear of Charlemagne's army was defeated by the Arabs, in 778, and the brave Roland killed. The battle forms an essential part in the fabulous cyclus of Charlemagne. The chief place of the valley, called also Roncesvalles, is traversed by the (so called) gates of Roland, leading over the Pyrenees to France; and in the church of the little place, fabulous antiquities bearing the name of Roland are shown. The French, under Moncey, here defeated the Spaniards in 1794; and Soult took a strong position here in 1813, from which Wellington drove him.

RONDO (*Italian*), OR RONDEAU (*French*); a composition, vocal or instrumental, generally consisting of three strains, the first of which closes in the original key, while each of the others is so constructed, in point of modulation, as to reconduct the ear, in an easy and natural manner, to the first strain. The *rondo* takes its name from the circumstance of the melody *going round*, after both the second and third strain, to the first strain, with which it finally closes.

RONSARD, PIERRE DE, an early French poet, who contributed to the improvement of the language and literature of his country, was born of a noble family of Vendome, in 1524. Having finished his education, he resided some time at the court of James V. of Scotland, and, on his return from his travels, was employed in a diplomatic capacity in Germany. At the Floral games, at Toulouse, he triumphed over his competitors, and received a silver statue of Minerva, which he presented to Henry II. He was greatly esteemed by that prince, and by his successors, Francis II. and Charles IX. He distinguished himself in the wars against the Huguenots; obtained the abbey of Bellozane; and was also prior of St Cosme, near Tours, where he died in 1585. His writings, consisting of sonnets, madrigals, eclogues, lyric pieces, elegies, and satires, and an epic poem, *La Franciade*, are of little merit. See *France, Literature of*, division *Poetry.*

ROOF. See *Architecture.*

ROOKE, SIR GEORGE, an English admiral, descended of an ancient family, in the county of Kent, was born in 1650. His strong predilection for a seafaring life induced him to enter the royal navy at an early age, in which he rose to the highest situations. His conduct in several naval expeditions under king William and queen Anne placed his name high in his profession; especially the gallantry which he displayed in the destruction of the French and Spanish fleets in Vigo bay, 1702, and the capture of Gibraltar, in 1704. Sir George occupied a seat, during several parliaments, for Portsmouth, and another at the council-board of the lord high admiral, prince George of Denmark. His votes on several occasions, particularly one in favour of Harley as speaker of the house of commons, in 1701, obscured his merits in the eyes of the court party; the value of his services was depreciated, and his good fortune ascribed to accident. He at length retired in disgust from the service to his family seat in Kent, where he died in 1709. See Campbell's *Lives of the Admirals*.

ROOT, in arithmetic and algebra, denotes any number or quantity, which, by successive multiplications into itself, produces powers. (See *Power*.) Thus 2 is a root of 4, 8, 16, because $2 \times 2 = 4$; $2 \times 2 \times 2 = 8$; $2 \times 2 \times 2 \times 2 = 16$. The power is named from the number of the factors, and the root is named from the power. Thus if a quantity be multiplied once by itself, the product is called the second power, or square, and the quantity itself the square root, or the second root of the product; if multiplied twice, we have the third power, or cube, and the quantity is the cube root, or third root; and so on: the fourth root is the biquadrate. Beyond this the roots are commonly called the fifth, sixth, &c. roots. The algebraic sign of root is $\sqrt{}$, and the fourth root of sixteen, equal to two, is written thus: $\sqrt[4]{16} = 2$. The same is the case with algebraic magnitudes: as, $\sqrt[2]{(a^2 + 2\,ab + b^2)} = a + b$. To extract the given root of mathematical expressions, is one of the most important of mathematical operations.

ROOT HUSBANDRY. See the article *Agriculture*.

ROOT, of plants. See *Plant*.

ROPE, in mechanics. See *Mechanics*.

ROPINESS; a frequent disease of wines, which have undergone an incomplete fermentation; or of sweet wines that have been bottled too soon. It shows itself by a milky or flaky sediment, and an oily appearance of the liquor when poured out. It arises from a partial combination of the mucilaginous, extractive, and saccharine principles of the wine.

ROSA, MOUNT (Mons Sylvius); the highest summit of the Swiss Alps, separating the Valais from Italy (lat. 45° 55′ N.). (See *Alps*.) According to the latest measurements, it is about 15,535 feet high, being from 200 to 250 feet lower than Mont Blanc. (q. v.) From the ever-blooming gardens of the Borromean isles, the traveller arrives in nine hours at Macugnaga, at the foot of the glaciers (q. v.) of mount Rosa. The valleys on the east and south are inhabited by people of German origin. Those on the west are uninhabited. Mount Rosa derives its name from its consisting of a number of lofty peaks, rising from a centre somewhat like the leaves of a rose. Jos. Zumstein made five journeys (1819—1822) to the summit. In 1820, he passed the night in a cleft in the ice twelve fathoms deep, to be able to reach the summit the next day. The group seems to consist, particularly in its upper half, of mica slate, which alternates occasionally with gneiss. It contains gold, silver, copper, and iron mines. Granite, in large masses, is found only at the foot of the mountain. Winter and summer rye ripen here at the height of from 5500 to 6000 feet; the grape, as high as 3090 feet (on the northern side 2200 feet); a covering of green turf is found as high as 9639 feet; the *pyrethrum Alpinum* and *Phyteuma pauciflorum* grow 11340 feet above the sea, on rocks free from ice. Between the north and south side there is a difference in the limit of vegetation of almost 1000 feet. The limit of perpetual snow is, on the south side, 9500 feet; the limit of trees, 7000 feet.—See *Der Monte Rosa, eine topographische und naturhistorische Skizze nebst einem Anhange der von Herrn Zumstein gemachten Reisen zur Ersteigung seiner Gipfel* (Vienna, 1824).

ROSA, SALVATOR; a celebrated painter, distinguished likewise as a musician and a poet. He was the son of an architect and surveyor, and was born at the village of Renella, in the kingdom of Naples, in 1615. He was intended for the church; but leaving, of his own accord, the seminary in which he had been placed for education, at the age of sixteen, he devoted himself to the study of music, and with such success that he became a skilful composer. His eldest sister having married Francesco Francanzani, a painter of considerable talent, Salvator, from frequenting his work-room, acquired a predilection for the art, in which he afterwards excelled. He at first amused himself with copying whatever pleased his fancy in the paintings of his brother-in-law; and his latent genius being thus awakened, his sketches were so much admired, that he was easily persuaded to adopt painting as a profession. But his taste was formed more from the study of nature among the wilds of the Appennines than from the lessons of other artists; and he delighted in delineating scenes of gloomy grandeur and terrible magnificence, to which the boldness of his conception, and the fidelity of his representations, communicate a peculiar degree of interest. He worked for some time at Naples in obscurity, till, one of his pictures being observed by the famous painter Lanfranco, he generously recommended Salvator to notice, and procured him effectual patronage and support. He removed to Rome, where he established his reputation, and raised himself to celebrity and independence. He afterwards went to Florence, where he was patronised and employed by the grand-duke and other members of the family of Medici. At length returning to Rome, he painted many pictures for the churches in that city, where he died in 1673. His satires and other poetical productions have been often printed, under the title of *Rime di Salvatore Rosa, Pittore e Poeta Napolitano*. On account of his caustic wit, he was excluded from the Roman academy. Some time after, the academy having refused admission to another artist, who practised surgery as well as painting, Salvator Rosa observed, that it was very injudicious in them, as the academy greatly needed a surgeon to replace the legs and arms that the members daily dislocated.

ROSARY, among the Catholics, consists of a string with a number of small beads of different sizes, which they use in saying over their prayers. It was introduced, according to some, by Dominicus de Guzman, the founder of the Dominican friars, in the first half of the thirteenth century. There are always in the rosary five or fifteen divisions, each containing ten small beads and one large one; for each of the smaller beads an Ave Maria, and for each of the larger a Paternoster (q. v.) is repeated. The Benedictine monks, however, as early as the sixth century, are said to have repeated their prayers, while at their work, according to a series of small beads, which were fastened upon a string. In honour of the victory obtained over the Turks at Lepanto (Oct. 7, 1571), pope Gregory XIII., in 1573, instituted the festival of the rosary, which is annually solemnized on the first Sunday of October. Pope Clement XI. extended this festival through all the Catholic part of Western Europe, in honour of the victory gained over the Turks at Peterwardein, Aug. 5, 1716. The Asiatic worshippers of the Grand Lama, and the Mohammedans, make use of a similar string, provided with beads, for saying their prayers. The string of the Mohammedans has ninety-nine small beads, which they, in their prayers, drop through their fingers, one after the other, while they recount the ninety-nine qualities of the Deity mentioned in the first part of the Koran. Their beads are generally made of holy earth, from Mecca or Medina.

ROSCELLINUS. See *Nominalists*.

ROSCOE, WILLIAM, the well-known author of the Lives of Lorenzo de' Medici, and Leo the Tenth, born in 1752. His parents were in an humble sphere of life, and could only afford him a common school education; and even this was interrupted. At an early age he was articled to an attorney in Liverpool, and this obliged him to study the Latin language; but he did not confine himself to what was necessary to his profession; by dint of hard study, he read and made himself master of the most distinguished Latin classics. In this he was assisted by a friend. He next studied the Italian and French languages, and in the former he became uncommonly proficient. He still found time to attend to his business, and to peruse the English poets. At the age of sixteen, he commenced poet, and composed Mount Pleasant, a descriptive poem. Having finished his clerkship, he was taken into partnership, by Mr Aspinall, an attorney of considerable practice; and he carried on the whole of the business, to which he paid a strict attention. During this period he contracted a friendship with Doctor Enfield and Doctor Aikin. Painting and statuary were also objects of his attention, and in 1773, he read, at the society in Liverpool, an ode on those subjects, and also sometimes read lectures there. When the question of the slave trade was brought before the public, Mr Roscoe took a warm part in favour of the abolition, and most cordially joined Mr Clarkson in his endeavours. He also wrote a reply to a Spanish Jesuit on that subject. His Scriptural Refutation of a Pamphlet on the Licitness of the Slave Trade, and his Wrongs of Africa, appeared in 1788; and, in 1795, he brought out the work which has gained him so much celebrity—the Life of Lorenzo de' Medici (2 vols. 4to, 1795). About the year 1797, Mr Roscoe retired from the practice of an attorney, and entered himself as a student of Gray's Inn, with a view to the bar. During this period he had leisure for other studies, and published the Nurse, a poem, from the Italian, and wrote the Life and Pontificate of Leo X. (4 vols. 1805.) Though the Life of Leo is not equal to his Lorenzo, it is a composition which displays talent and extensive research. Mr Roscoe being attached to the whig party, they supported him as a candidate to represent Liverpool, and he was successful, but at the next election was thrown out. He had some time before, entered into business at Liverpool as a banker, but was unsuccessful. He died in June, 1831. Mr Roscoe was the author of several political pamphlets, and the great mover and supporter of several public works in Liverpool. To the botanic garden and to the Atheneum he lent much effective assistance. His Life and Correspondence were published (1833, 2 vols. 8vo.) by his son, Henry Roscoe, a barrister-at-law, who himself died in 1836, in his thirty-seventh year. Mr Henry Roscoe was the author of several important professional works, particularly a Treatise on Real Property, and, like his father, possessed an extensive acquaintance with polite literature, and was favourably known as an elegant and accomplished writer.

ROSCOMMON; an inland county of Ireland, in the province of Connaught, about sixty miles in length from north to south, and thirty-seven broad from east to west. Its surface is in general flat, except at the northern extremity, and is varied with extensive bogs, rocky tracts, and intermediate pastures. The hills on the north are called the Carlow Mountains. The Shannon is navigable in its passage by Roscommon. The Suck, its tributary, flows between this county and Galway. Lough Key is the principal lake. Agriculture constitutes the chief occupation of the inhabitants; and the fertile limestone soil of the district seconds the industrious exertions of the husbandman. Wheat, barley, oats, rye, of prime quality, are grown here; and no county in Connaught exceeds this in sweetness of pasture. There is an excellent breed of horses here, adapted to the saddle or to draught. To this county also belongs a portion of the valuable coal-field, underlying the western counties, and usually termed the Connaught coal district. The manufactures here are not extensive; they consist of linen and coarse woollens, the latter principally for home consumption. The baronies are Athlone, Ballymore, Ilan, Boyle, Ballintobber, and Moycarne. The principal towns are Athlone, a borough, part of which is situated in the county of Westmeath; Roscommon, the capital of the shire; Elphin, an ancient city; Boyle, Stokestown and Athleague. Population of the county in 1831, 239,903.

ROSCOMMON, WENTWORTH DILLON, earl of, was born in Ireland, in 1633, and was educated at Caen, in Normandy. Returning to England on the restoration, he plunged into the dissipation of the dissolute court, ruined his estate by gaming, became involved in quarrels, and found it necessary to go to Ireland. Here he pursued nearly the same course, and soon after returned to England. From this time he began to act with more discretion, and became distinguished among the wits of the day. On the accession of James II. he went to Italy, and died at Rome in 1684. His principal production is the poetical Essay on Translated Verse. Johnson calls him the most correct writer of English verse before Dryden.

ROSE. The rose has always been the favourite flower among civilized nations. The beauty of its foliage, the elegance of its form, the large size and agreeable tints of the flowers, together with their delicious fragrance, have all conspired to acquire for it the distinction of the queen of flowers. The species of rose are numerous, and are extremely difficult to distinguish. All seem to be exclusively confined to the temperate and cold parts of the northern hemisphere. They are spiny shrubs, with pinnated leaves, provided with stipules at their base, the flowers are very large, and are disposed, in a greater or less number, at the summit of the branches, or upon lateral branchlets; the calyx is enlarged below, and contracted at its orifice, where it divides into five lanceolate segments; the corolla consists of five heart-shaped petals, and the stamens are numerous; the seeds are very numerous, covered with a sort of down, and are attached to the interior of the tube of the calyx, which, after flowering, takes the form of a fleshy globular, or ovoid berry. The rose has given its name to a distinct family of plants, the *rosaceæ*, comprehending the apple, peach, cherry, raspberry, strawberry, &c. Roses in general are not delicate with respect to the nature of the soil, but flourish in almost every kind. Their easy culture has distributed them into almost every garden. The colour is, in different species and varieties, red, white, yellow, purple, or striped, either simple or in almost numberless shades and mixtures; the flowers are single, semidouble, and double. Many hundred varieties are enumerated in the catalogues, and new ones are produced annually: some of them are quite black. New varieties are obtained from seed, but the usual mode of propagation is by layers. All will grow by cuttings, and some freely, but this mode is seldom resorted to. For preserving delicate varieties, the best mode seems decidedly that of budding on hardier sorts. To produce strong flowers, requires some attention in pruning: old wood should be yearly cut out, and the young shoots thinned and shortened according to their strength, and whether number or magnitude of flowers be desired. Where very large roses are wanted, all the buds, except that on the extreme point of each shoot should be pinched off as soon as they make their appearance, and the plant liberally supplied with water. Some roses are cultivated on a large scale for commercial purposes, for distilling rose water, and for making ottar or essential oil of roses. Six pounds of rose petals will impregnate, by distillation, a gallon of water strongly with their odour; but a hundred pounds scarcely affords half an ounce of ottar. (See *Ottar of Roses.*) Perfumers, distillers, and confectioners make great use of the perfume of the rose. A conserve and a sirup, which are used in medicine, are also prepared from their petals: these last, if bruised and reduced to a paste, moulded and dried, will preserve their fragrance for many years. In the north of Europe, the berries of the rose with the addition of sugar, are sometimes employed in the preparation of domestic wines; and the pulp, in a dried state, affords a grateful ingredient in sauces. The leaves of every kind of rose have been recommended as a substitute for tea, and are employed in currying the finer kinds of leather.

ROSE ACACIA (*robinia hispida*); a highly ornamental, flowering shrub, inhabiting the southern parts of the Alleghany mountains, and now frequently seen in gardens, in Europe. It is a species of locust, and the flowers resemble those of the common locust, but are very large and rose-coloured. Their beauty is enhanced by the brown, bristly covering of the stalks and calyx; they somewhat resemble the moss rose, in this respect. The stem is very hispid. See *Locust.*

ROSE FEAST. At Salency (a village near Noyon, in the ci-devant Picardy, now department of the Oise), a festival, of a peculiar kind, is celebrated June 8. A girl is selected (formerly by the seigneur, at present probably by the justice of the peace), from three most distinguished for female virtues. Her name is even pronounced from the pulpit, that objections may be made to her. She is afterwards conducted in procession to the church, where she hears the vesper service, kneeling in a place of honour. After this she used to open a ball in the evening with the seigneur. She receives a present. The girl is called *la rosière*, because she is adorned with roses. The feast was imitated in several other places, (e. g. at Surenne, near Paris.) Though the effect has been good, it is undoubtedly exaggerated by some travellers. The 8th of June is the day of St Medard, bishop of Noyon, (475 to 545,) and tradition says he established the festival, but the Bollandists (q. v.) mention nothing of this fact. It is more probable that its foundation dates from the time of Louis XIII. From him comes the silver clasp which holds the wreath of roses together; and to his time probably belongs the picture of the first rose feast in the church of Salency.

ROSE OF JERICHO (*anastatica hierichuntia*): a cruciferous plant, growing in the arid wastes of Arabia and Palestine, which possesses the curious property of recovering its original form, however dry it may be, upon immersion in water. The generic name has been applied to it from this circumstance, and, in the Greek, signifies *resurrection.* It is a small, annual, herbaceous plant, three or four inches high, with minute white flowers, which are succeeded by a little pod, divided into two cells, each containing one or two seeds. When the seeds are ripe, the leaves fall off, the branches curl inwards, and interlace, forming a rounded pellet about as large as the fist, which is torn up and rolled over the sands by the autumnal winds. In this state, if moistened, it gradually unrolls its branches, and contracts again into a ball as it becomes dry. This circumstance has often been taken advantage of to impose on credulous persons.

ROSE-WOOD (*amyris balsamifera*); a small West Indian tree, the wood of which forms an important article of commerce, and is much used by cabinet-makers for the covering or veneering of tables and other furniture. Its grain is of a dark colour, and very beautiful. The tree yields an odoriferous balsam, much esteemed as a medicine in various diseases, and as an external application. A species of amyris grows wild in East Florida; but it is little known.

ROSEMARY (*rosemarinus officinalis*); a shrubby, aromatic plant, growing wild in the southern parts of Europe. It belongs to the *labiatæ*, and has but two stamens. The stem is three or four feet high, bearing opposite linear and sessile leaves which are smooth and shining above, and whitish and cottony on their inferior surface; the flowers are pale-blue, or almost ash-coloured, and disposed in little racemes, which arise from the axils of the leaves towards the extremities of the branches: they expand in April and May. All parts of the plant have a strong and penetrating odour. The leaves are used in Italy for seasoning certain dishes. Rosemary is tonic and stimulant, and formerly enjoyed considerable repute as a medicine, but is now rarely employed. It yields, by distillation, a light, pale, essential oil, of great fragrance. It is less used in medicine than as an aromatic, and is the principal ingredient in Hungary water.—A second species of rosemary is found towards the southern extreme of South America.

ROSENMULLER, JOHN GEORGE, a celebrated German theologian (born in 1736, died in 1815), was professor of theology at Erlangen and Leipsic, and distinguished himself as a preacher, and by his activity in the cause of education. Of his numerous works, we shall mention only his *Scholia in N. Testament.*, and his *Hist. Interpretationis Librorum Sacrorum* (5 vols., 1795—1814).—His son *Ernest Frederic Charles*, a distinguished Orientalist, born in 1768, was educated at Leipsic, where he heard the lectures of Morus, Platner, Beck, &c. In 1795, he was extraordinary professor of Arabic, and, in 1813, ordinary professor of Oriental literature. Among his works are his valuable *Scholia in Vet. Testamentum; Scholia in Nov. Testamentum;* the East, in Ancient and Modern Times (6 vols., 1818—20); Manual of Biblical Antiquities, and Manual of Biblical Criticism and Exegesis (4 vols., in German). These works contain a great mass of valuable matter, critical, exegetical, geographical, and historical. Rosenmuller has also rendered important services to Oriental literature by his *Institutiones Linguæ Arabicæ* (1818)*; Arabum Adagia; Analecta Arabica* (1826, 2 vols.), &c.—A second son, *John Christopher* (born 1771, died 1820), was an eminent anatomist, and (1802) professor of anatomy and surgery at Leipsic. Besides some writings on subjects of natural history, he was the author of Anatomico-Surgical Delineations (German and Latin, 1804—12, 3 parts), Manual of Anatomy, and of several articles in Pierer's Medical Dictionary, and other periodicals, and of various other literary works.

ROSES, War of the, from the reign of Henry VI. (1452) to that of Henry VII. (1486). See *Britain* and *England:* also *Edward IV.* and *V.*, *Richard III.*, and *Henry VI.* and *VII.*

ROSETTA; a city of Egypt, near the mouth of that branch of the Nile anciently called the *Bolbitic*, now commonly called the *canal of Rosetta* (see *Nile*); lat. 31° 24′ N.; lon. 30° 28′ E.; population, 13,500, principally Copts. Rosetta is thought to have been built by the caliphs, in the ninth century. It is important as a depot of goods brought down the river, and forms the medium of communication between Alexandria and Cairo. The city is more neatly built than the other Egyptian cities, and is particularly distinguished for the beauty and luxuriant vegetation of its environs. The streets are not, however, broad; and, as the houses are of several stories, each projecting over that beneath, they nearly meet at the top, which promotes coolness, but gives a gloomy appearance to the place. The celebrated Rosetta stone was found here during the French campaign in Egypt. See *Hieroglyphics.*

ROSETTA STONE.—See *Hieroglyphics;* also the work of the marquis Spineto on Hieroglyphics, mentioned in that article. In his work, a full account is given of the discovery of the art of deciphering the hieroglyphics, for which this stone furnished the first means. There is also a translation of the curious decree, which is partly reprinted in Stuart's Translation of Greppo's Essay on the Hieroglyphic System.

ROSICRUCIANS; members of a society the existence of which became known, unexpectedly, at the beginning of the seventeenth century. Its object was, ostensibly, the reformation of state, church, and individuals; but closer examination showed that the discovery of the philosopher's stone was the true object of the fully initiated. A certain Christian Rosenkreuz, who was said to have lived long among the Bramins, in Egypt, &c., was pretended to have founded the order, in the fourteenth century; but the real founder is believed to have been Andrea, a German scholar, of the beginning of the sixteenth century, whose object, as is thought, was to purify religion, which had been degraded by scholastic philosophy. Others think that he only gave a new character to a society founded before him, by Agrippa von Nettesheim. Krause (mentioned in the article *Masonry, Free*) says that Andrea occupied himself from early youth with the plan of a secret society for the improvement of mankind. In 1614, he published his famous Reformation of the whole wide World, and *Fama Fraternitatis.* Christian enthusiasts and alchemists considered the society poetically described in those books as one really existing; and thus Andrea became the author of the later Rosicrucian fraternities, which extended over Europe, and were even brought into connexion with free-masonry. After a number of books had been written on the Rosicrucian system, and the whole exploded, the interest in the Rosicrucians was revived, in the latter half of the eighteenth century, in consequence of the abolition of the order of Jesuits, and the stories of their secret machinations, as well as of the frauds of Cagliostro and other notorious impostors.

ROSIERE, LA. See *Rose Feasts.*

ROSIN. See *Resin.*

ROSKOLNICIANS, also RASKOLNICIANS; schismatics of the Russian Greek church. They call themselves *Starowerzi* (i. e. following the old faith), or *Isbraniki* (i. e. elected). They suffered much persecution under Peter the Great. Catharine II. gave them religious liberty. Many tribes of Cossacks and a great part of the inhabitants of Siberia belong to this sect.

ROSLIN; a small village, in the county of Mid Lothian, parish of Lasswade, distant from Edinburgh, seven miles south-west. The village is inhabited only by families engaged in agricultural pursuits. It was formerly a place of some importance, made a burgh of barony by James II. (of Scotland), and privileged with the right of holding markets and fairs, but is now chiefly remarkable on account of its ruined castle and collegiate chapel. Roslin Castle is of uncertain origin, but it was the ancient seat of the St Clairs or Sinclairs, who lived here in great splendour in the fifteenth century. It is situated on a detached rock, in a deep glen, on the north side of the river North Esk; but the station, though highly pleasant and romantic, seems by no means adapted for a fortress, as it is commanded by hills on both sides of the river. The access to it is by a bridge over a deep gulley, and through a gate, originally of great strength. In 1554, it was burned by the forces of Henry VIII., and the present buildings were chiefly erected since that period. Roslin Chapel was founded in 1446 by William St Clair, prince of Orkney and duke of Odenborough, for a provost, six prebendaries, and two singing boys; and dedicated to St Matthew the Evangelist. This structure is incomplete, consisting only of the chancel, and part of the transept. It is in the Gothic style, richly ornamented. The interior, sixty-nine feet in length and thirty-four in breadth, is divided into a centre and aisles by two ranges of clustered pillars, adorned with sculptured foliage, and figures of exquisite workmanship. Roslin was created a British earldom in 1801.

ROSOGLIO, or ROSOLI; originally sometimes used as a generic term for the creams, or superfine liqueurs (see *Liqueurs)*, but is more generally applied to a certain species of these.

ROSS, Man Of. (See *Kyrel.)* The village of Ross is in Herefordshire, twelve miles south-east of Hereford, and a hundred and fifteen north-west of London.

ROSS, Alexander; a very voluminous writer, on political, religious, and philosophical subjects, was born in Aberdeen in 1590, and died in 1654.

He was master of the grammar-school of Southampton, and chaplain to Charles I. The titles of his numerous works, which are now entirely forgotten, it is needless to enumerate. He is now chiefly remembered from the celebrated couplet in Hudibras:

> " There was an ancient sage philosopher,
> Who had read Alexander Ross over."

ROSS, Alexander, the author of the "Fortunate Shepherdess," a Scottish poem of considerable merit, was born in Aberdeenshire, in 1699. His father was a farmer in easy circumstances, and he received a good education in the Mareschal college, Aberdeen. After acting as tutor for some time, he was, in 1732, appointed schoolmaster of Lochlee, a wild parish, in Angus-shire; and the rest of his life was spent in discharging the duties of this humble office. It was not till he was nearly seventy years of age that he first appeared as an author. In 1768, was published, at Aberdeen, with the patronage of Dr Beattie, "Helenore, or the Fortunate Shepherdess," a poem which has gone through numerous editions, and which in the north of Scotland disputes popularity with Ramsay and Burns. Its chief merit consists in descriptions of scenery and of the habits of a rude and pastoral life. Many of Ross's songs are still favourites with his countrymen. We may mention 'The Rock and the Wee Pickle Tow,' 'To the Begging we will go,' and 'Woo'd and Married and a'.' Ross died in 1784, leaving a vast number of pieces in manuscript, which, however, have never been published.

ROSS-SHIRE; an extensive maritime county in the north of Scotland, bounded on the north and north-east by Sutherland, and on the south by Inverness-shire. It has the main part of Cromarty-shire on the east, and is throughout interspersed with minute portions of that county. On the west coast it comprehends the island of Lewis, and some smaller islands. On the east coast, the county terminates in an obtuse point, but on the western shores, which are much indented by arms of the sea, the land extends sixty miles from north to south. The most northerly point of the county in the mainland is in lat. 58° 30′ north, and the most southerly 57°. The shire contains a superficies of 2427½ square geographical miles, of which the interspersed parts of Cromarty-shire form 260. Lewis contains 431 square miles. The number of acres in the mainland is about 2,071,466, and in Lewis 359,093. Of the first number, 220,466 belong to Cromarty-shire, and 5973 to the district of Ferintosh, which is part of the county of Nairn. The whole of this extensive territory, except a portion on the east side, called Easter Ross, is mountainous, wild, and pastoral. The mountains are for the most part in groups. Ben Wyvis is esteemed the highest, and rises about 3720 feet above the level of the sea. Almost the whole of the west coast abounds in magnificent mountain scenery, and the interior is in general picturesque. The eastern part of the county is pleasing in its aspect, and possesses all the attributes of a rich champaign country. The chief rivers on the east side of Ross-shire are the Conan, which flows into the Cromarty Firth, and the Oikel and the Carron, flowing into the Dornoch firth. The largest river on the west coast is the Ewe, which has a short course from Loch Maree. The Conan, and its principal branch the Ramey or Black-Water, form some falls of considerable height and beauty. The indentations of the sea on the west coast, or salt water lakes, proceeding from north to south, are Loch Enard, Loch Broom, Little Loch Broom, Loch Greinord, Loch Ewe, Gairloch, Loch Torridon, Loch Keeshorn, Loch Carron, and Loch Alsh, with its inner southerly arm, Loch Duich. The county has a great number of lakes of fresh water in the interior, the most important of which is Loch Maree.

As regards agriculture this county may be considered as consisting of three districts; namely, the East coast, where the land is suited for the culture of grain, and where farming has been brought to a high state of perfection; the Central Highlands, partly adapted for grain, and partly for pasture; and the west coast, which is fitted only for pasturage, being rugged and mountainous. Great numbers of horses, cattle, goats, and especially sheep, are fed on the hills, which likewise abound with game; and the sea, lochs, and rivers are much frequented by water-fowl. Limestone and free-stone approaching to the nature of marble, are found here; ironstone is abundant; and a rich vein of silver and lead ore has been discovered in the parish of Alness. The three royal burghs in this county are Tain, Dingwall, and Fortrose. The principal Highland clans here are the Mackenzies, the Rosses, the Frasers, the Mackays, the Macraes, and the Munroes. Rosshire with Cromarty, contains thirty-one complete parishes, and part of two other parochial divisions.—In 1801, the population of Ross and Cromarty shires was 53,525; in 1811 it was 60,853; in 1821 it was 68,828; and in 1841, it was 78,685.

ROSSBACH; a village, in the Prussian province of Saxony, between Naumburg and Merseburg, famous for the decisive victory which Frederic the Great obtained there over the imperial and French troops under marshal Soubise, November 5, 1757.

ROSSBERG; a mountain in Switzerland, near the east bank of lake Zug, and not far from Righi. In 1806, in consequence of a long continuance of heavy rain, a large mass detached itself, and covered with desolation the valley of Goldau. Part of it reached lake Lowerz, which rose above its banks. Above a hundred lives were lost by this disaster.

ROSSTRAPPE *(horse's hoof-mark)*; one of the finest spots in the Hartz mountains, near the village Thale, on the river Bode, above which the rocks rise 830 feet. One of these, a rugged and precipitous peak, has on its top an indentation like the print of the hoof of a gigantic horse, which gives its name to the neighbouring district.

ROSTOCK; a seaport of the Baltic, in Mecklenburgh-Schwerin, with 19,024 inhabitants, among whom no Jew is suffered. It was a member of the Hansa (q. v.) from the earliest time of this league to 1630, when the greater league was dissolved. Its former importance was great. Its university was founded in 1419; it has twenty-three *professores ordinarii*, but is one of the less important universities of Germany. No subject of Mecklenburg-Schwerin can have an appointment in that country under the government, without having studied for some time in Rostock. There are generally but about a hundred and fifty students there. The library has about 80,000 vols. Lat. N. 54° 0′ 1″; lon. E. 12° 12′ 16″. It is the largest city of the grand-duchy. In 1824, four hundred and eighty-six vessels entered this port, and five hundred and seventeen cleared out.

ROSTOPSCHIN, Feodor, count, was born in 1760, of an ancient Russian family. He entered the imperial guards as a lieutenant, and afterwards travelled into foreign countries. He was afterwards highly promoted under Paul I., and loaded with orders, but afterwards dismissed in disgrace. Under Alexander, he obtained the important post of governor of Moscow, and exercised an important influence over the campaign of 1812, even if the assertion of the French, that the burning of the city was his work, should be untrue. He himself decidedly denied this charge in his *Vérité sur l'Incendie de Moscow* (Paris, 1824). It is certain, however, that he caused his villa near Moscow to be burnt, and took measures for the destruction of the magazines in that city. Buturlin calls him the author of the conflagration, and the public voice in Russia coincides with this opinion. In 1814, he accompanied the emperor Alexander to the congress at Vienna. He afterwards travelled, and spent several years in Paris, where he became acquainted with some of the most distinguished families, and united his daughter in marriage to a grandson of the celebrated count Ségur (French ambassador to the court of Catharine II.). He returned to Russia, and died in Moscow, at the commencement of the year 1826.

ROSTRA (incorrectly *rostrum); a* tribunal *(suggestus)* in the forum in Rome, whence the orators used to harangue the people, so called from the beaks *(rostra)* of the ships taken from the Antiates, with which it was adorned.

ROT, DRY. See *Dry Rot.*

ROTA or RUOTA ROMANA; the highest papal court of appeal, whose jurisdiction extends over all Catholic Christendom, and which decides not only spiritual controversies, but all questions concerning ecclesiastical benefices of a value above five hundred *scudi;* and the decisions thereof have the highest authority, derived from the doctrine of the pope's infallibility. The *rota Romana* has a collegiate constitution, and consists of twelve prelates, of whom three must be Romans, one a German, one a Frenchman, and one a Spaniard. They collectively bear the title of *auditori della rota*, or auditors of the holy apostolical palace, because their sessions are held semi-weekly in the palace of the pope. The name of this court is derived, perhaps, from the circumstance that the floor of their hall is overlaid with marble slabs in the form of wheels *(rotæ):* according to some, it is so named because, in ancient Rome, a round public building stood upon the place where this tribunal was first established. Other supreme courts, as, for example, at Genoa, have borne the same name. This court ceased with the papal government, but is now re-established. See *Curia, Papal.*

ROTATION. The motion of the different parts of a solid body about an axis is called *rotation*, being thus distinguished from the progressive motion of a body about some distant point or centre; thus the diurnal motion of the earth is a motion of rotation, but its annual motion one of revolution.

ROTATION OF CROPS. Some sorts of crops exhaust the soils on which they grow, much less than others, as is the case with many of what are called *green* crops, when compared with the white or corn kind; so that it is highly advantageous to alternate them. Moreover, certain sorts of green crops are well suited, by the shade of their leaves and the kind of culture which they require while growing, for keeping the ground clean from weeds, and in a mellow and suitable state for the reception of the more valuable sorts of grain crops. All the culmiferous plants injure the ground in a high degree, which probably depends upon their having but few, and those small, leaves, so that they are obliged to draw their nourishment chiefly from the soil; also from their seeds ripening all at the same time, and the plants ceasing to grow when they begin to ripen, so that the roots cease to penetrate into the ground, and, of course, to move or loosen it. The green crops, and those of the root kind, being opposite to the white in each of the respects just mentioned, serve, generally speaking, when alternated with them, to counteract their injurious effects. The alternation of crops is a matter of vast importance in agriculture, and one in which great improvements have been made within the last century.

ROTH; German for *red*, and found in many geographical names, as *Rothweil* (red village).

ROTHERHITHE; a parish and village on the south bank of the Thames, now connected with Southwark. Here are several dock-yards for building East Indiamen and vessels for the merchant service, wharfs for boat-building, anchor-wharfs, ship-breakers' wharfs, timber wharfs, deal-yards, and a multitude of warehouses for articles necessary for naval purposes. The Commercial-dock at this place is sufficiently capacious to receive two hundred vessels of burden; and near it is the East Country Dock. Population of parish in 1841, 13,917. See *London.*

ROTHESAY; a royal burgh of Scotland, is situated on a beautiful bay on the north-east side of the island of Bute, at the distance of fifty-two miles from Glasgow, and is the capital of the county of Bute. The town owes its origin to the castle of Rothesay, the ruins of which still remain. This castle is of great antiquity, and is supposed to have been erected during the warlike expeditions of the Norwegians against Scotland. In Haco's first expedition, it was attacked by the Norwegians, with eighty ships, when it was taken, by a sap and assault, with the loss of 300 men. It was retaken by the Scots, soon after the battle of Largs. It was taken possession of by the English, during the reign of John Baliol; but, in 1311, it was surrendered to Robert Bruce. In 1334, Edward Baliol took the castle and fortified it; but it was again, shortly afterwards, taken by Bruce, the steward of Scotland. King Robert II. visited this castle in 1376, and again in 1381. Robert III. acceded to the throne in 1390, and, in 1398, his eldest son, David, earl of Carrick, prince and steward of Scotland, was created duke of Rothesay, in a solemn council held at Scone, being the first introduction of the ducal dignity into Scotland. It still gives the title of duke to the heir-apparent of the British crown. In 1685, the castle was seized by the marquis of Argyle, and burnt and destroyed.

The town of Rothesay was erected into a royal burgh in 1401, by king Robert III., who endowed it with a considerable landed territory. Its privileges were confirmed and extended by James VI., in 1585. About the year 1700, the family of Argyle offered great inducements for people to settle at Campbeltown, and many of the traders of Rothesay availed themselves of these offers. The town from that date fell greatly into decay, and continued in a languishing state till about 1765, when a custom-house was erected, and the inhabitants engaged in the herring fishery, in which they were very successful. About the year 1778, a considerable cotton factory was established here; and there is now also a manufactory for weaving by power looms. The cotton mills of Rothesay are moved by water collected in reservoirs, from the rains falling in the adjacent country, applied in a most ingenious manner by Mr Thom, engineer. Sixty years since the town possessed no more than one or two half-decked vessels of fifteen tons burden, and some open boats; but so much had the traffic of the port increased in 1791, that there were then, in addition to boats, from eighty to a hundred vessels between fifteen and a hundred tons burden belonging to it. Since that period there has been a proportionate increase. The prosperity of the town has been facilitated by the erection of piers, with an excellent harbour, which opens on a safe and extensive bay; and from this circumstance alone, Rothesay may be expected to rise still more in the scale of commercial importance. The distillation of spirits, a tan-work, net-making, buss and boat-building, in addition to fishing and fish-curing, give employment to a considerable number of hands. As a bathing place, or resort during the summer months, Rothesay possesses many charms, and is deservedly popular. Being sheltered by rising grounds, forming behind it a screen from south-western storms and winds, the climate is considered mild and pleasing, while the air is of a salubrious character from sweeping over the sea. The old part of the town is situated at the inner part of the bay; it has extended itself on both sides, near its head, by the addition of villas and lodging houses, which command a remarkably fine view of the entrance from the Clyde.

The parish of Rothesay is about ten miles in length, and from three to four in breadth; and on the coast are four bays, which afford safe anchorage. The surface is in general hilly, but there are some small valleys, which are very fruitful.

Population of the landward part of the parish in 1821, 1602; of the burgh, 4107; in 1841, population of the parish, and burgh, 7147.

ROTHSCHILD. This celebrated European house has raised itself from an humble sphere to an unexampled degree of wealth and importance by judicious enterprise, a sagacious and systematic series of operations, which thousands of others had the same opportunities to take advantage of, a reputation for fair dealing, and a correct estimate of men and events. The father of the five brothers, Mayer Anselm, was born at Frankfort on the Maine, in 1743, and died in 1812. His parents died when he was but eleven years old, and he was, as is common with poor Jews in Germany, educated for a teacher. This occupation not suiting his taste, Rothschild engaged in trading, in a small way, and was not long after employed in a banking house in Hanover; and in a few years his industry and frugality made him master of a small capital. Returning to Frankfort, he married, and established the banking house, which is still in existence. His activity, intelligence, and integrity in a short time procured him a continually increasing credit, particularly after his nomination as agent to the landgrave of Hesse, in 1801. In 1802, 1803 and 1804, his affairs continued to prosper so much, that at this period he was able to contract for a Danish loan of four million dollars. The house, up to the recent death of Nathan Rothschild, consisted of his five sons; Anselm, born in 1773, the head of the house, resides at Frankfort; Solomon, born in 1774, resides alternately at Berlin and Vienna, principally at the latter place; Nathan, born in 1777, lived in London since 1798, where he died in 1837; Charles, born in 1788, is at Naples; and James, born in 1792, at Paris. In 1813, occurred those political events which raised the house of Rothschild to the position it has since occupied in the commercial and financial concerns of the world. In a period of twelve years, about 500 million dollars were raised by the house for different powers, by way of loan or subsidy, which were distributed in nearly the following proportion: for England two hundred millions, for Austria fifty millions, for Prussia forty millions, for France eighty millions, for Naples fifty millions, for Russia twenty-five millions, for several German courts four millions, for Brazil twelve millions, exclusive of various other large sums. The remarkable success of the Rothschilds, setting aside the great opportunities which they have enjoyed from favourable circumstances, may be attributed to their strict adherence to two fundamental maxims. The first of these, in compliance with the dying injunctions of their father, is their conducting all their operations entirely in common. Every proposition of magnitude made to one of them is submitted to the deliberations of all; no project is adopted until thus fully discussed, and it is then executed by united efforts. A second principle is, not to aim at exorbitant profits, to set definite limits to every operation, and, so far as human prudence and oversight can do, to render it independent of accidental influences: in this maxim lies one of the main secrets of their strength. The reasonableness of their terms, the punctuality with which they execute their contracts, the simplicity and clearness of their plans, and their judicious manner of carrying them into effect, fortify their credit. A constant exchange of couriers is kept up between them, who are frequently in advance of those of the government. Several princes have publicly acknowledged their obligations by conferring nobility and other honours upon the different members of the family. In the latter part of 1831, the Rothschilds contracted for a loan of fifteen million francs for the court of Rome, which may be increased to twenty-five millions.

ROTROU, Jean, a French tragic poet, born at Dreux, in 1609, was the most distinguished dramatic writer among the predecessors of Corneille. Of his thirty-six tragedies, tragi-comedies, and comedies, only one—the tragedy of Venceslas (as revised by Marmontel)—keeps the stage; the plot of this piece is borrowed from the Spanish of Roxas. Rotrou endeavoured to elevate the tone of the drama by giving it a moral purpose, and his heroes and heroines are made to utter Christian sentiments. Richelieu, who granted him a pension, could not prevail upon him to assist in decrying the *Cid* of Corneille. In 1650, Rotrou fell a victim to a pestilential disease, to which he nobly exposed himself in the discharge of his official duties, as one of the principal magistrates of his native place. His *Œuvres* appeared at Paris in 1820, in 5 vols. See *France, Literature of*, division *Dramatic Poetry.*

ROTTERDAM; a city, and seaport town of Holland, on the right bank of the Meuse, which is here above a mile in width, twenty miles from its mouth; lat. 51° 55″ N.; lon. 4° 28′ E.; twelve miles south-east of the Hague, thirty-three south-west of Amsterdam. Rotterdam is the second city in the Dutch provinces, for commerce and wealth, and contains 63,093 inhabitants. The form of Rotterdam is triangular, its longest side (above a mile and a half in extent) stretching along the bank of the Meuse. The town is surrounded by a moat, and entered by six gates towards the land, and four towards the water. It is traversed by the Rotte, a broad canal, which here joins the Meuse. Rotterdam is intersected, even more than other towns in Holland, by canals, which divide the half of the town, near the river, into several insulated spots, connected by drawbridges. These canals are almost all bordered with trees. The row called the Boomtjes is the finest in the city, as well in regard to buildings as for its pleasant prospect across the Meuse. Next to the Boomtjes comes the Haring-vliet. The other streets are, in general, long, but narrow. The houses of Rotterdam are rather convenient than elegant: their height is of four, five, or six stories. Of the public buildings of Rotterdam, the principal are the exchange, finished in 1736, the great church of St Laurence, from the top of which there is a most extensive prospect. After these come several other churches, the whole number of which is fifteen, the town-house (an old edifice), the admiralty, the academy, the theatre, the extensive buildings of the East India company, a number of large warehouses, and a few manufactories. Rotterdam has an active transit trade; the manufactures are not extensive; sugar refineries and distilleries furnish the chief articles of industry. There are several learned societies. It is the birth-place of the celebrated Erasmus. Rotterdam received the title and privileges of a city in 1270. Its commerce suffered severely from the French revolution; and, in 1825, an inundation of the Meuse did great damage to the city. See *Netherlands.*

ROTUNDA (*rotonda*); every building round within and without, as the Pantheon, in Rome.

ROUBILLIAC, Louis Francis, a sculptor, was a native of Lyons, in France, who settled in England, in the reign of George I.; and, in the absolute dearth of native talent which prevailed at that period, he long stood at the head of his profession. He executed a statue of Handel for Vauxhall gardens, and another of Sir Isaac Newton, erected at Trinity college, Cambridge; but was chiefly employed on sepulchral monuments. He wrote satires in his native language. He died, in London, in 1762.

ROUBLE; a Russian coin. (For the silver rouble, see *Coin*, division *Russian;* for the paper rouble, see *Assignation.*) By the official valuation of the paper rouble, in the payment of taxes, a few years since, one silver rouble was equal to three roubles sixty copecks paper.

ROUCOU. See *Annotto.*

ROUE. This term is applied to a person, in the fashionable world, who is devoted to a life of pleasure and sensuality, and regardless of the restraints of moral principle. Philip, duke of Orleans, who, during the minority of Louis XV. was regent of France, and had a low opinion of men in general, and his friends in particular, applied the name of *roués* to his favourites and boon companions, to signify that they were fit to be broken on the wheel.

ROUEN (Rothomagus); a city of France, formerly capital of the province of Normandy, at present of the department of the Lower Seine, on the right bank of the river Seine, eighty-six miles north-west of Paris, forty-five south-east of Havre. The population, by the official enumeration of 1827, was 90,000; it is now estimated to exceed 100,000. Rouen is an archiepiscopal see, and the seat of various judicial and administrative authorities, and is one of the richest commercial cities of France. The Seine is crossed by a bridge of boats, which is paved, and rises and falls with the tide, and a new stone bridge, recently erected. The city is not prettily built, the streets being mostly narrow and dark, and the houses chiefly of wood. The quays along the river are handsome. The principal public buildings are the great cathedral, the church of the ancient abbey of St Ouen, remarkable for its lofty tower, the *palais de justice*, and the theatre. In the market-place *aux veaux* is a statue of the maid of Orleans, who was burnt here by the English, in 1430. Rouen has several literary and scientific institutions and societies, and seminaries of education, a public library, a mint, fourteen churches, several hospitals, &c. The transit trade of Rouen is considerable. The city is seventy miles from the sea, including the windings of the river, and, with the aid of the tide, vessels of 150 or 200 tons come up to the quays. It is more important as a manufacturing place, having manufactures of cotton, linen, woollen, iron ware, paper, hats, pottery, sugar refineries, &c. Dyeing is also extensively carried on.

ROUGET DE L'ISLE. See *Marseillaise Hymn.*

ROUM (i. e. the *kingdom of the Romans*); a name given to Natolia by Solyman, sultan of the Turks, when he invaded and became master of it, in the eleventh century. It is now chiefly applied to a part of Asiatic Turkey, extending from the Mediterranean to the Black sea, east of Caramania and Natolia, and west of Armenia and the government of Diarbekir, including the governments of Sivas, Adana and Marasch. See *Turkey in Asia.*

ROUMELIA. See *Romania.*

ROUND ROBIN (corruption of *ruban rond*, a round ribbon) was used, originally, by the French officers when signing a remonstrance. They wrote their names in a circular form, so that no one should be obliged to head the list.

ROUND TABLE. If we may believe tradition, towards the end of the fifth century, there reigned in Britain a Christian king, the British Uther-Pendragon, who had a most powerful and not less wise and benevolent enchanter, Merlin, for a counsellor. Merlin advised him to assemble all his knights, who were distinguished for piety, courage, and fidelity towards him, at feasts about a round table. It was calculated to receive fifty knights, and was to be occupied, for the present, only by forty-nine, one place remaining empty for an occupant yet unborn. This was Arthur, or Artus, son of the king by Igerna, whom the king, by the magic power of Merlin, was permitted to enjoy under the form of her husband. Merlin had exacted a promise that the education of the prince should be intrusted to him; and he accordingly instructed him in every thing becoming a brave, virtuous and accomplished knight. Arthur, therefore, at a later period, occupied the empty seat at the round table, which, under him, became the resort of all valiant, pious and noble knights. (See *Merlin*, and *Arthur.*) This table, admission to which became the reward of the greatest virtues and feats of arms, afforded materials for the romantic poets of the Anglo-Normans, forming a distinct cycle of characters and adventures. (See *Romance*, and *Chivalry.*) According to another account, Arthur himself established the round table at York. Von Hammer thinks the fiction is of Eastern origin. The adventures of the knights of the round table are founded on the legend of the

Sangreal, or Sangraal, which is probably a corruption of the Latin *sanguis realis*, or the French *saing real* (true blood). According to this legend, Joseph of Arimathea received into the cup from which Jesus drank at the last supper the blood which flowed from his side on the cross. By means of this cup, called *graal*, Joseph performed the most astonishing miracles, in different countries, particularly in Britain—a power which was also possessed by his descendants, who inherited the cup. In the course of time, however, it was lost; and, for the purpose of recovering it, Pendragon, father of Arthur, founded the order of the round table, the knights of which bound themselves to wander over the whole world in search of the sangraal. This legend was probably blended with the British traditions of king Arthur by the Trouvéres, or Anglo-Norman poets. Among the romances of the round table, are Tristan de Leonnois, Lancelot du Lac (see *Lancelot*), Perceforest, Sangraal, &c.

ROUSSEAU, Jean Baptiste, an eminent French lyric poet, born at Paris, in 1671, was the son of a shoemaker, but received a good education, and, at an early period, displayed a strong taste for poetry. In 1688, he obtained a situation in the service of the French ambassador at Copenhagen, and subsequently accompanied marshal Taliard to England, as his secretary. He wrote several pieces for the theatre, on the success of one of which, having, according to the Parisian custom, appeared on the stage to receive the congratulations of the audience, he is said to have had the ingratitude to disown his father, when the old man, rejoicing at his son's triumph, came forward to speak to him, before the friends who surrounded him. In 1701, he was admitted into the academy of inscriptions and belles-lettres, and his lyric compositions procured him high reputation among the French literati; but his turn for satire, and his quarrelsome temper, at length involved him in disgrace. Some abusive and indecent verses were circulated at Paris, which Rousseau was accused of having written, but which he disclaimed, and professed to have discovered the author in the person of his enemy, Saurin. To relieve himself from the obloquy under which he laboured, he commenced a prosecution of that academician, for composing the defamatory couplets in question, and having failed in substantiating the allegation, he was exiled from France in 1712. He went to Switzerland, and afterwards resided at Vienna, under the patronage of prince Eugene. The latter part of his life was spent in the Netherlands, where he obtained a pension from the duke of Aremberg, which he resigned on having forfeited the favour of that nobleman. His death took place at Brussels, in 1741. An edition of his works was published under his own inspection, by Tonson (London, 1723, 2 vols., 4to.); and since his death they have been often printed, in various forms. The best edition is that of Amar, with a commentary and life of the author (5 vols. Paris, 1820). The same editor has also published his *Œuvres poétiques*, with a commentary (2 vols., 1824). Rousseau's works are—1. Four books of Odes, the first book containing odes from the Psalms: purity and elegance of expression are here combined with beauty and dignity of versification; but the lyric enthusiasm is often wanting; 2. cantatas, of which he was the creator, and in which he is very distinguished; 3. epistles in verse, the least pleasing of his works, but highly popular in their day, on account of their satirical allusions; 4. allegories, forced and monotonous; 5. epigrams, which, next to his odes and cantatas, are the best of his works, and, with some exceptions, are witty, finely turned, and well expressed; 6. four comedies in verse, and two in prose; 7. his operas have no merit.

ROUSSEAU, Jean Jacques, one of the most celebrated writers of the last century, whose works had a great influence on the moral and political feelings of the age, was the son of a watchmaker in Geneva, where he was born in 1712. His mother died in bringing him into the world, and he therefore calls his birth his first misfortune. In his Confessions, he tells us that at the age of seven he was very devout; that at this time he was a great reader of romances; and at the age of eight knew Plutarch's Lives by heart. He also became acquainted with Tacitus and Grotius, which lay about in his father's shop, while quite a boy, and his musical taste was displayed at the same early age. In his tenth year, he was placed with a clergyman in the country, and in his fourteenth was articled to an engraver, whose severity disgusted him with his situation. He therefore ran away from his master, and, after wandering about for some time in Savoy, became a convert to the Catholic religion, to save himself from starvation. Being placed in a monastery to receive the necessary instructions, the young convert soon made his escape, and, after a series of adventures, was recommended by a clergyman, to the notice of Madame de Warens, in Annecy, who caused him to be instructed in science and music, and treated him with the greatest affection. At the age of twenty. Rousseau went to France, with the expectation of being able to maintain himself by giving lessons in music. In Besançon, he sang at some concerts with success, and received the promise of a place; but after teaching music some time at Chamberry, he went, on account of ill health, to Montpellier. Here finding the sea air not to agree with him, he returned to his benefactress, and remained with her until 1742, when he received the place of secretary to the French ambassador in Venice. After remaining there a year and a half, he went to Paris, and received his living by copying music, employing his leisure hours in the study of natural science. In 1750, he gained the prize offered by the academy of Dijon, on the question, whether the revival of learning has contributed to the improvement of morals, taking the negative side of the question, it is said, at the suggestion of Diderot. He soon after brought out his *Divin du Village*, a comic opera, of which he had himself composed the music. This piece was received with general favour, and the author was almost worshipped by the French; but the appearance of his celebrated Letter on French Music (1753), in which he pointed out its defects. excited a general storm. Singers and connoisseurs who could not wield the pen, contributed to spread calumnies, pasquinades and caricatures, against the author, who retired to Geneva. By his change of religion, he had lost the rights of a citizen. He now again embraced protestantism, and was formally reinstated in the privileges of a free citizen of Geneva. From Geneva Rousseau went to Chamberry, where he wrote his essay *Sur l'Inégalité parmi les Hommes*. This work excited still more sensation than his prize essay. In it he compares the wild and civilized man, represents the former as the state of nature and innocence, and treats the idea of property, and the wealth and inequality of condition to which it gives rise, as the source of misery and corruption among men. He now returned to Paris and, fixing himself at Montmorency (q. v.), wrote his Social Compact, his New Eloisa, and his Emilius. His political treatises, particularly the essays on the social compact, and the inequality of conditions, were the sources of many of the speculative errors of the French revolution. His New Eloisa produced a very different, but equally strong sensation in France, where love merely fluttered around the toilet, and in those countries where female virtue was looked upon with respect. His celebrated work on education, *Emile ou de l'Education* (1762) was originally written for the use of a mother. It was condemned by parliament to be burned, on account of its religious views, and he himself was sentenced to imprisonment. He wished to retire to Geneva, but he was also threatened with imprisonment there, and his book was burned by the common hangman. He therefore took refuge in Moitiers-Travers, a small village of Neufchâtel, where he again found himself among Protestants, the simplicity of whose worship was agreeable to him. The Geneva clergy assailed him from their pulpits, he wrote his celebrated Letters from the Mountains, in reply to their calumnies. This work, with his Letter to the Archbishop of Paris, and his *Dictionnaire Physique Portatif*, were publicly burned in Paris, in 1765. New troubles drove him from Moitiers, and he resided two months on Peter's island, in the lake of Bienne. His residence here produced his *Botaniste sans Maître.* Neither was he long tolerated here; but the canton of Berne ordered him to quit the country without delay in the severest season of the year. On reaching Paris, he became the object of ridicule to the philosophers, but was kindly received by Hume, whom he accompanied to England; but, yielding to his unfounded suspicions of his friends in England, towards whom he conducted himself with the most perverse ingratitude, he left the country, and returned to Paris in 1767. (See Hume's *Private Correspondence*, London, 1820.) In 1768 he published his Musical Dictionary, and soon after appeared his melo drama of Pygmalion. As he grew older, his dislike of society increased, and he retired in May, 1778, to Ermenonville, near Paris, where he died of apoplexy, July 2, of the same year, at the age of sixty-six years. He was buried in the isle of poplars, where a monument is erected to his memory. The principal traits of his character were an enthusiastic passion for love and freedom, a spirit of paradox, an inflexible obstinacy, and a warm zeal for the good of men, combined with a gloomy hypochondria. His works were published at Paris, 10 vols., 1764, and have often been republished. The best edition is that of 1824, seq., 20 vols., with the notes of Musset-Pathay, who is the author of an excellent work—*Histoire de la Vie et des Ouvrages de J. J. Rousseau* (1 vol., Paris, 1827). Theresa Levasseur became his companion in 1745; in 1768 Rousseau married her. His children by her had all been placed in the foundling hospital. She was faithful to him, and knew how to gratify his humours, but had no other merit. In 1791, a *fête champêtre* was established at Montmorency, in honour of Rousseau, and his bones were deposited, in 1794, in the Pantheon.

ROUSSILLON; before the French revolution, a province of France, once belonged to Spain, bounded north by Languedoc, east by the Mediterranean, south by Catalonia, and west by the Pyrenees; about eighteen leagues in length, and twelve in breadth. The land is fertile in general. The principal rivers are the Tet and Tech. Perpignan is the capital. It now forms the department of the eastern Pyrenees. The counts of Roussillon governed this district for a long time. The last count bequeathed it to Alphonso of Arragon, in 1178. In 1462, it was ceded to Louis the XI. of France; but in 1493, it was restored to the kings of Arragon, and in 1659 was finally annexed to France by the treaty of the Pyrenees. See *Pyrenees, Peace of.*

ROUSSILLON WINES; in general, the wines of the province of this name. The best for export are those of Baix, Tormilla, Salces, Rivesaltes, Spira, Collioure, Bagnols, Parcous, and St André. The red sorts are thick, of a beautiful colour, and used chiefly to improve other wines. A particular sort is called Grenache, and is, at first, similar to the Alicant wine, dark red, but grows paler with age, and in the sixth or seventh year is similar to the famous Cape wine. Of the white Roussillon wines, the Maccabeo is the most costly.

ROVEREDO (in German, *Rovereith*); a well built town in Tyrol, in the valley of the Adige, on the road from Trent to Peschiera, with about 12,000 inhabitants who chiefly live by spinning, dyeing, and selling silk, particularly sewing silk; lat. 45° 55′ 36″ N.; lon. 11° 0′ 43″ E. The place is of military importance, as is proved by several battles which have been fought there. Masséna obtained a victory at this place over a part of the army of Wurmser, September 3 and 4, 1796. The loss of the Austrians was estimated at 5000 men and 25 cannons.

ROVIGO; a town on a branch of the Adige, in the Lombardo-Venetian kingdom, with 1000 inhabitants, from which Napoleon gave the title of duke to his minister of police, Savary.

ROWE, Elizabeth, a lady distinguished for her piety and literary talents, was the daughter of Mr Singer, a dissenting minister of Ilchester, where she was born in 1674. She became accomplished in music and painting at a tender age, and even attempted versification in her twelfth year. In 1696 she published a volume of Poems on several occasions, by Philomela. The charms of her person and conversation procured her many admirers, among whom she chose Mr Rowe, the son of a dissenting minister, whom she lost a few years after marriage, by a consumption, at the early age of twenty-eight. On this event she retired to Frome, where she produced the greatest part of her works, the most popular of which was her Friendship in Death, or Twenty Letters from the Dead to the Living—a work of a lively imagination, strongly imbued with devotional feeling. This production, which was was published in 1728, was followed in 1729 and 1731, by Letters, moral and entertaining, in Prose and Verse. In 1736, she published a History of Joseph, a poem, which she had composed in early life. After her death (1736), Dr Isaac Watts published her Devout Exercises of the Heart; and in 1739 her Miscellaneous works in Prose and Verse, appeared in 2 vols. 8vo, with an account of her life and writings prefixed.

ROWE, Nicholas, an English dramatic poet, born in 1673, at Little Berkford, Bedfordshire, was the son of John Rowe, a serjeant-at-law. He studied at Westminster, as king's scholar, under the celebrated Dr Busby, and at the age of sixteen was entered a student at the Middle Temple; but on the death of his father, he gave up the law, and turned his chief attention to polite literature. At the age of twenty-four, he produced his tragedy of the Ambitious Stepmother; Tamerlane followed, which was intended as a compliment to King William, who was figured under the conquering Tartar, whilst Louis XIV., with almost equal want of verisimilitude, ranked as the Turkish Bajazet. It was however, a successful piece; and indeed, with little nature, contains many elevated and manly sentiments. His next dramatic performance was the Fair Penitent, remodelled from the Fatal Dowry of Massinger. In 1706, he wrote the Biter, a comedy, which being altogether a failure, he was prudent enough to keep to his own line, and from that time to 1715, produced his Ulysses, Royal Convert, Jane Shore, and Lady Jane Grey. When the duke of Queensbury was made secretary of state, he appointed Mr Rowe his under-secretary. This post he lost by the death of his patron; and, on the accession of George I., he was made poet-laureate, and also obtained several posts, the emoluments of which aided by his paternal fortune, enabled him to live respectably. He died in 1718, in his forty-fifth year, and was buried in Westminster abbey, where his widow erected a monument to his memory. Rowe was respectable, and possessed agreeable talents for society. His dramatic fables are generally interesting, and the situations striking; his style singularly sweet and poetical; his pieces forcibly arrest attention, although they but slightly affect the heart. As an original poet, Rowe appears to advantage in a few tender and pathetic ballads; but as a translator he assumes a higher character, as in his version of Lucan's Pharsalia, published after his death, which, although too diffuse, was highly praised by Johnson. The poetical works of Rowe were published collectively, in 3 vols. 12mo, 1719.

ROXANA. See *Alexander*.

ROXBURGH; a parish and village of Scotland, in Roxburghshire, the former about eight miles long and four broad, comprising an area of 7000 acres. The surface of the land is inclined but level, and the soil is chiefly a rich loam. It is watered by the rivers Tweed and Teviot, on the banks of which are beautiful plantations. Population in 1831, 962. The ancient town and castle of Roxburgh are now extinct. *Old Roxburgh* was situated over against Kelso, on a rising ground at the west end of a fertile plain, which was formed into a peninsula, by the confluence of the rivers Tweed and Teviot. The new town was built a little to the eastward of the old, and hence in history is called the Easter Roxburgh. In the time of David I. (1124-53), the town was fortified by a wall and ditch, and was even then famous for its schools, which were under the superintendence of the abbot of Kelso. It was also one of the first royal burghs created by that monarch, and was governed by a provost or alderman and bailies. Here was likewise a mint; for coins are still to be seen of William the Lion, struck there; and also some of James II. Near old Roxburgh, on the Teviot side, there was a convent for monks of the Franciscan order, of which no remains are now to be seen; but on its site stands a hamlet called Friars. Roxburgh had the privilege of an annual fair, called St James' Fair, which till this day is held on the place where the town stood. The ancient castle of Roxburgh, or Rokesburgh, stood in the vicinity of the town on an eminence near the termination of the peninsula, and rising in an oblong figure to the height of forty feet. At the south base of the eminence flows the Teviot, which by a bend joins the Tweed, a short way below. A few fragments of the wall, which seem to have formed the exterior defence, are all that remains of this celebrated fortress. Roxburgh gives the title of duke to the family of the Kers of Cessford. John, the third duke of Roxburgh, was a celebrated bibliomanist. His library of 9353 works, which was particularly rich in old romances of chivalry and early English poetry, was sold by public auction in London, in 1812. The catalogue was made out by G. and W. Nicol. The prices paid for some works were enormous. A copy of the first edition of Boccaccio (Venice, in 1471, folio) was bought by the marquis of Blandford (duke of Marlborough) for £2260 sterling; a copy of the first work printed by Caxton, with a date, Recuyell of the Historyes of Troye (1471, folio), was sold for 1000 guineas; and a copy of the first edition of Shakspeare (1623, folio) for 100 guineas. The Roxburgh Club, formed in commemoration of this triumph of bibliomany, celebrates its anniversary (June 17), on that of the sale of the Boccaccio. Every year, one of the members is required to be at the expense of an impression of some rare book, of which only copies enough for the club are struck off.

ROXBURGHSHIRE; a county in the south of Scotland, bordering on England for many miles; is bounded on the north by Berwickshire, on the east and south-east by Northumberland and Cumberland, on the south-west by Dumfriesshire, and on the west by Selkirkshire. It extends from south-west to north-east thirty-eight miles, and from south-east to north-west, twenty-seven. The county is divided by its waters into several districts, the chief of which is Teviotdale, being that division drained by the river Teviot and its tributary streams. Teviotdale comprehends 521 square miles. Liddisdale, which forms the south-west corner of the county, on the borders of Northumberland and Cumberland, comprehends the Alpine territory, which is drained by the Liddel, and its tributaries, and contains 120 square miles. The third division is that portion between the Gala and Leader, measuring twenty-eight square miles. And the fourth district is that part of the shire lying north of the Tweed, included in the Merse, which comprehends twenty-seven miles. Towards the north and west the county is mountainous, but on the south and east level and fertile. The scenery in general is highly romantic, displaying hills, mosses, and mountains, intermixed in beautiful variety with narrow valleys, through which flow numerous streams, many of them famed in pastoral song. Besides the Tweed, the Teviot, and the Liddel, may be mentioned the Ale, the Jed, the Slittrick, the Rule, and the Kail, which fall into the Teviot, and the Hermitage, the Tweeden, the Tinnis, the Kershope, and the Blackburn, which join the Liddel; in Roxburghshire also rise the Tyne and the Coquet, but they soon leave this county and pass the English border. The principal mountains are the Cheviot and the Cockraw, to which may be added the Wish, the Dunian, and Ruberslaw. Sheep here form the chief stock of the farmer; and the manufacture of woollens affords employment to many of the inhabitants. An ancient road, called the rugged causeway, supposed to have been constructed by the Romans, may be traced the whole distance from Hounam to the Tweed. In this county are many border towers and castles, and before the union between England and Scotland they must have been very numerous on the southern frontier, which formed a part of the Debateable land, inhabited by freebooters and marauders almost incessantly engaged in predatory warfare. Roxburghshire contains twenty-nine complete parishes, and a part of four others. The county possesses only one royal burgh, namely, Jedburgh; and two other towns, Kelso and Hawick; besides some villages, as Melrose, Castletown, &c. The principal proprietors are the dukes of Roxburgh and Buccleugh, the marquises of Lothian and Tweeddale, lord Minto, and the families of Scot, Ker, Elliot, Douglas, Pringle, Rutherford, Don, &c. The county contains many excellent mansions, the principal of which are Fleurs, the seat of the duke of Roxburgh; Mount-Teviot, the seat of the marquis of Lothian; Minto House, the seat of the earl of Minto; the Pavilion, the seat of lord Somerville; Springwood Park, the seat of Sir John Scott Douglas; Ancrum, the seat of Sir William Scott; Makerston, the seat of Sir Thomas Brisbane Macdougal; Abbotsford, the seat of Sir Walter Scott; Stitchel, the seat of Sir John Pringle; Stobs and Wells, the seats of Sir William F. Elliot; Edgerston, the seat of Mr Rutherford; Drygrange, the seat of Mr Tod; Chesters, the seat of Mr Ogilvie; Eildon Hall, the seat of Mr Henderson; and Riddel House, the seat of Mr Sprott. The most interesting of these mansions is Abbotsford, the residence of Scotland's great poet and novelist. (See the article *Abbotsford.*) Roxburghshire has given birth to three poets of distinction—Thomson, the author of the Seasons, Dr John Armstrong, and Dr John Leyden. Population of Roxburghshire in 1841, 46,025.

ROXOLANA. See *Solyman II.*

ROY, RAMMOHUN. See *Rammohun Roy.*

ROY, ROB. See *Rob-Roy.*

ROYALISTS. In France, after the revolution of 1792, this name was given to the adherents of the Bourbons; and from the restoration, in 1814, down to the revolution of 1830, it served to designate those who were in favour of the old system of things, and opposed to liberal principles. Those of the former royalists who continue to adhere to, and in fact are often active for the elder line of the Bourbons, are now generally called *Carlists* (from Charles X). Those royalists who carried farthest the doctrine of legitimacy (q. v.), the touchstone of this party, are called *ultras*, without addition, though this term might be, and in some cases actually is, applied to the ultra-liberals.

ROZIER, PILATRE DE. See *Aëronautics.*

RUBBLE WALLS. See *Architecture.*

RUBENS, PETER PAUL, the most eminent painter of the Flemish school, was the son of a doctor of laws and a sheriff of Antwerp, who, during the troubles of the Low Countries, retired to Cologne, where his celebrated son was born in 1577. The family subsequently returned to Antwerp, where the subject of this article received a literary education, and early displayed a talent for design, which induced his mother, then a widow, to place him with the painter Van Oort, whom he left for the school of Otto Venius. His talent having made him known to the archduke Albert, governor of the Netherlands, that prince employed him on several pictures, and recommended him to the duke of Mantua, at whose court he remained six years, studying the works of Giulio Romano, and other great artists, and paying particular attention to the colouring of the Venetian school. In the interval he also visited Madrid, on a commission for the duke, where he saw some of the finest works of Titian and other masters. On leaving Mantua, he visited Rome and other cities of Italy, copying some of the best pictures, and perfecting himself in every branch of his profession. After a residence of seven years in Italy, he returned to Antwerp, being recalled by the illness of his mother, who died before his arrival. This event induced him to retire to the abbey of St Michael, where he gave himself up for a time to solitary study. His reputation now stood so high, that he was called to the court of the archduke, and pensioned; soon after which, he married his first wife, and lived in a style of great magnificence, which excited much envy among inferior artists, who sought to lower his reputation by attributing the best parts of his pictures to his numerous pupils. These calumnies he treated with disregard, and, aware of the source of much of the ill-will, relieved the necessities of some of his principal decriers. For the cathedral at Antwerp he painted that great masterpiece, the Descent from the Cross; for the Jacobites, the Four Evangelists; and he continued to execute many great works with surprising facility, until, in 1620, he was employed by Mary de' Medici to adorn the gallery of the Luxembourg, for which he painted a well-known series of magnificent pictures, allegorically exhibiting the principal events in the life of that princess. Such was the opinion of his general talents, that he was chosen, at the recommendation of the archduchess Isabella, to be the private negotiator of a peace between Spain and England; for which purpose he visited Madrid in 1628, where he was treated with great distinction. He painted for Philip IV., and his minister Olivarez, twelve or fourteen of his most celebrated pictures, in the short space of nine months; and, in 1629, he returned to Flanders with a secret commission, and proceeded to England. Although not received openly as a minister, Charles I., who was both a patron and judge of the fine arts, was much gratified by his visit; and during his stay in England, where he succeeded in his negotiation, he was engaged to paint the ceiling of the banqueting-house at Whitehall. He also executed several other pictures for the English nobility, some of which are to be found at Blenheim, Wilton, Easton, &c. He remained in England about a year, during which time he received the honour of knighthood, and then returned to Flanders, where he married the beautiful Helen Formann, his second wife, and was nominated secretary to the council for the Low Countries. He maintained a highly dignified station through the rest of his life, which was one of continued prosperity, until his death at Antwerp, in 1640, in the sixty-third year of his age.

Rubens, beyond all comparison, was the most rapid of the great masters; and so many pictures bear his name, it is impossible not to credit a part of what was asserted in his own days, that the greater portion of many of them was performed by his pupils. His great characteristics are freedom, animation, and striking brilliancy and disposition of colouring, the favourite tone of which is that of a gay magnificence, from which, whatever the subject, he never deviated. Besides the excellence of his general powers, he saw all the objects of nature with a painter's eye, and instantly caught the predominating feature by which the object is known and distinguished; and, as soon as seen, he executed it with a facility that was astonishing. According to Sir Joshua Reynolds, he was the greatest master of the mechanical part of his art that ever existed. His chief defects consisted in inelegance and incorrectness of form, a want of grace in his female figures, and in the representation of youth in general, and an almost total absence of sublime or poetical conception of character. The works of Rubens are found in churches, palaces, and galleries throughout Europe; for every branch of the art was cultivated by him,—history, landscape, portrait, and even common life. His celebrated Rape of the Sabines is in the national gallery of Great Britain. The number of engravings from the designs of Rubens exceed three hundred. This great painter, who was no mean scholar, wrote some treatises on his art in very good Latin. See Sir J. Reynolds's *Works;* Walpole's *Anec.;* Fuseli's *Lectures.*

RUBEZAHL. See *Ruebezahl.*

RUBICON; a river of Italy, anciently forming the boundary between Gaul and Italy. Cæsar, by passing this river with his troops, and thus leaving the province assigned him, made war on the republic. See *Cæsar.*

RUBRIC; in the canon law, signifies a title or article in certain ancient law books; thus called because written, as the titles of the chapters of our ancient Bibles are, in red letters.

Rubrics also denote the rules and directions given at the beginning and in the course of the liturgy, for the order and manner in which the several parts of the office are to be performed. There are general rubrics, special rubrics, a rubric for the communion, &c. In the Romish missal and breviary are rubrics for matins, for lauds, for translations, for beatifications, &c.

RUBY, ORIENTAL. See *Corundum.*

RUDDER. See *Helm.*

RUDDIMAN, Thomas, a celebrated philologist and Latin grammarian, was the son of a respectable farmer, and born in the parish of Boyndie, county of Banff, in 1674. After passing through the usual course of education at the parish school, he set out, in his sixteenth year, for Aberdeen, where he was a successful competitor for a vacant bursary at King's college. When only twenty-one, he was appointed parish schoolmaster at Laurencekirk; and in that situation became acquainted with the celebrated Dr Pitcairne, by whom he was invited to Edinburgh. He repaired to the metropolis in the beginning of the year 1700, and on his arrival, Dr Pitcairne procured him employment in the Advocates's library as a sort of assistant librarian, though for upwards of a year he had no regular or formal engagement in that capacity. During this interval he employed himself in arranging books, copying papers, and making extracts from interesting works. In 1701, he married the daughter of a gentleman of small estate in Orkney, and in the year following, he was formally admitted, on the 2nd of May, assistant librarian, with the salary of only £8, 6s. 8d. sterling per annum. He now set himself to the task of improving his circumstances by literary industry and diligence, and the situation he was in eminently favoured such a design. He copied chronicles and chartularies for the Glasgow university, which gave him constant and regular employment in this way. He formed connexions with booksellers, and revised, corrected, and added to the works which they were publishing, particularly those of a learned character. The first work to which he is known to have lent his assistance was Sir Robert Sibbald's "Introductio ad Historiam rerum a Romanis gestarum in ea Boreali Britanniæ parte quæ ultra Murum Picticum est." He was next employed to revise "The Practiques of the Laws of Scotland," by Sir Robert Spottiswood. In 1707, he published an edition of Wilson's "Animi Tranquillitate Dialogus." To this work he added a new preface, and subjoined a sketch of the life of Wilson. In 1709, he published a new edition, with notes, of "Johnstoni Cantici Solomonis Paraphrasis Poetica," which he dedicated, in a copy of verses, to his patron Dr Pitcairne. He afterwards edited an edition of Virgil's Æneid, as translated into Scottish verse by the celebrated Gawin Douglas. To this work, besides superintending and correcting the press, he contributed a Glossary, explaining difficult and obsolete words; a performance which bespeaks great depth of research and soundness of judgment. In 1711, he assisted in preparing a new edition of the works of Drummond of Hawthornden, and immediately after lent his aid to Abercromby, to publish his "Martial Achievements of the Scots Nation." He next devoted himself to philological pursuits; and in 1713, published a new edition of the Latin Vocabulary of John Forrest, with improvements. In the year following, he published that work which filled up the measure of his fame. This was his "Rudiments of the Latin Tongue;" a work which he lived to see go through no less than fifteen editions. It is almost unnecessary to add, that it immediately supplanted all those of a similar kind which had been previously in use, every one of which were singularly defective; and that it has remained in extensive use throughout the grammar schools of Scotland ever since. Shortly after this, he was employed to edit "Buchanani Opera Omnia," now collected for the first time. To this work, which was published in 1715, in two vols. folio, he contributed large annotations, in which he treated freely both the character and political principles of the author; a proceeding which raised him a host of enemies, and involved him in a litigated and annoying controversy. In 1715, he added to his other avocations that of printer, admitting a younger brother of his own, who had been bred to the business, as a partner of the concern. The first production of his press, was the second volume of Abercromby's Martial Achievements. Amongst the learned works of note, which he printed subsequently, were, the first volume of "Epistolæ Regum Scotorum," 1722, for which he wrote a preface; "Ovidii Excerpta ex Metamorphoseon Libris," containing English Notes, by Willymot and himself, 1723; Herodian, 1724; Pars Prima of his own Grammaticæ Latinæ Institutiones, 1725, which brought him a great accession of fame and profit; and Pars Secunda of the same work. He also printed, in 1733, "A Dissertation upon the Way of Teaching the Latin Tongue." In 1728, he was nominated, conjunctly with James Davidson, printer to the college university. Previously to this viz., in 1724, he began to print the continuation of the Caledonian Mercury for Rolland, who was then its proprietor; but in 1729, he acquired the whole interest in that paper, which was transferred to him in March of the year just named, and continued in his family till 1772, when it was sold by the trustees of his grandchildren. Amongst the last of his literary labours was an elaborate preface, or rather introduction, to Anderson's "Selectus Diplomatum et Numismatum Scotiæ Thesaurus;" an able and learned disquisition on various subjects of antiquity. Being now in the sixty-fifth year of his age, he ceased, after the completion of the work just spoken of, from every kind of literary employment; and, nearly at the same period, resigned his half of the printing concern to his son, allowing, however, his name to remain in the firm. He died at Edinburgh on the 19th January, 1757, aged eighty-three.

RUDESHEIMER. See *Rhenish Wines*.

RUE (*ruta graveolens*); a strong scented plant, cultivated in gardens. The root is perennial, woody; the stems, branching almost from the base, about two feet high, bearing alternate petiolate, and very much divided leaves; the flowers are yellow, and disposed in corymbs at the summit of the branches; the calyx is persistent, and divided into four or five segments; the corolla consists of as many oval petals, and is longer than the calyx; the stamens are eight or ten, and the style single. The odour of rue is very strong and disagreeable, and the taste acrid and bitter. It has been celebrated as a medicinal plant from high antiquity, and a great variety of virtues have been attributed to it, but is now comparatively little used, being chiefly employed in cases of hysteria and flatulent colic. Notwithstanding its disagreeable taste and odour, the leaves were employed for culinary purposes by the ancient Romans, and even now enter into the composition of certain dishes, and especially of salads, in some parts of Italy and Germany. About twenty species of rue are known.

RUEBEZAHL; the name of a mountain spirit, sometimes friendly, sometimes mischievous, dwelling in the Riesengebirge, in Silesia. Ruebezahl corresponds to our Robin-Goodfellow. He has become, of late, the hero of some operas. See *Brownie* and *Elf*.

RUFF (*machetes pugnax*). A species of the shore birds, alike curious in the disposition of its plumage and for its pugnacious character. It is about a foot in length, with a bill an inch long. The plumage varies so much in colour, in different individuals, that many imaginary species have been formed. It derives its common name from the disposition of the long feathers of the neck, which stand out like the ruff formerly worn; it is, however, only the male that is furnished with this appendage, which he does not gain till the second year, before which period he closely resembles the female. They are birds of passage, appearing at certain seasons of the year, in great numbers, in the north of Europe. They are generally taken in large nets. When fattened, they are dressed like the woodcock, without withdrawing their intestines or their contents, which are considered by the connoisseurs as affording the most delicate kind of seasoning for these birds. The males are much more numerous than the females, and during the pairing season have numerous and severe conflicts for the possession of their mates. These combats are thus described by Pennant and other writers:—The male chooses a stand on some dry bank near the water, round which he runs so often as to make a bare circular path; the moment a female appears in sight, all the males within a certain distance commence a general fight, placing their bills to the ground, spreading their ruff, and using the same action as the common cock. This pugnacious disposition is so strong, that when they are kept for the purpose of fattening, their place of confinement is obliged to be dark, as, the moment any light is admitted, they attack each other with such fury, and fight with so much inveteracy, as to occasion a great slaughter. The female lays four eggs, forming her nest in a tuft of grass, and incubates about a month.

RUGEN; the largest island in the Baltic, belonging to Germany, about a mile from the continent, containing 360 square miles, and 28,000 inhabitants. It belongs to the government of Stralsund, in the Prussian province of Pomerania. Its northern coast consists chiefly of precipitous chalk rocks, and the whole island is rich in romantic scenery, for which reason it is much resorted to by travellers. The capital is Bergen, with 2200 inhabitants. The Stubbenkammer, the north-eastern promontory, rises 543 feet above the sea. Not far from it is the Stubbenitz, a beautiful beech wood, probably the place where, according to Tacitus, the ancient Rugians worshipped the goddess Hertha. Arcona (lat. N. 54° 38′ 46″; lon. E. 13° 25′ 35″) is the most northern point of Germany proper. Rugen came under the Prussian government in 1815, with the rest of Swedish Pomerania. The Rugians are a hardy race of fishers and husbandmen. The inhabitants of the peninsula of Mönkguth are very tall. See J. J. Grümbke's account of the island (in German; Berlin, 1819, 2 vols.)

RUGENDAS, George Philip, one of the most famous battle painters, was born at Augsburg, in 1666. After six year's study, his right hand became disabled by a fistula. He continued to work with the left. He painted and engraved much. His pictures are full of spirit and ease; there is an endless variety in the attitudes of his horses. Among his engravings, all laboured with uncommon care, are distinguished six large ones, representing the siege of Augsburg, of which he was a witness. He died at that city, in 1742. His sons George Philip (died 1774) and Christian (died in 1781) are also known as engravers.

RUHE, the German for *rest*, used as an affix to several geographical names; for instance, *Carlsruhe* (rest of Charles; place of repose for Charles).

RUHNKENIUS, David (properly *Ruhnken*), professor of history and eloquence in the university of Leyden, one of the most celebrated classical scholars of his time, and especially distinguished for his simple, beautiful, classic Latin style, was born in 1723, at Stolpe, in Hither Pomerania. His opulent parents designed him for study, and sent him at first to Königsberg, where he made himself acquainted with classic authors of antiquity, and also practised music and other of the fine arts. In his eighteenth year, he went to Wittenberg, and studied with eagerness the philosophy of Wolf. Two years after, he went to Leyden, to enjoy the instructions of the celebrated Hemsterhuys in the Greek language. There he spent six years, and devoted himself to the whole circle of the humane studies, under the guidance of his great teacher. The first fruits of his application were two *Epistolæ criticæ* (1749 and 1751); the subject of the first of which was the hymns of Homer, Hesiod, and the Greek anthology; of the second, Callimachus, Apollonius, and Orpheus. It was now his wish to obtain a philosophical professorship in some Dutch university; but, having no prospect of such an appointment, he resumed, at Hemsterhuys' advice, the study of the Roman law, which he had begun in Wittenberg. But without being diverted from Greek literature, he undertook an edition of Plato. For this end, he procured from the library of Sangermann, at Paris, a transcript of the only existing copy of Timæus's Lexicon of Plato, and published it, with a commentary (Leyden, 1756 and 1789). So much critical and grammatical erudition can rarely be found condensed into so narrow a space. This work was sufficient to give Ruhnken a rank among the first philologists of his times. As he had become fond of his easy life in Holland, he declined several honourable offers of professorships in foreign countries, and devoted his leisure to a literary tour, with the intention of consulting the principal libraries of Europe. For a year, he laboured amid the treasures of the royal library of Paris, where, with unwearied industry, he transcribed and collated manuscripts, and made excerpts from them. Hemsterhuys had, meanwhile, found opportunity, as he was now oppressed with age and sickness, to get Ruhnken appointed assistant lecturer on the Greek language; and, on the death of Ouderdorp, he was appointed professor of history and eloquence. Of his numerous works, among which are his Memoir of Hemsterhuys, his edition of Muretus, the most distinguished is his *Velleius Paterculus* (Leyden, 1779)—a true model for the treatment of Latin classics. In 1780, he published a hymn of Homer to Ceres, which Mathäi had discovered in Moscow, and communicated to him in a letter. In his intended edition of Plato he had only finished the *scholia*, when death put an end to his activity, in 1798. His life has been written in a masterly manner by his scholar Daniel Wyttenbach.

RULE OF THREE, in arithmetic, called by some authors the *golden rule*, is an application of the doctrine of proportion to arithmetical purposes, and is divided into two cases, *simple* and *compound;* now frequently termed *simple* and *compound proportion.*—*Simple rule of three*, or *simple proportion*, is when, from three given quantities, a fourth is required to be found, that shall have the same proportion to the given quantity of the same name, as one of the other quantities has to that of the same name with itself. This rule is, by some authors, divided into two cases; viz. the *rule of three direct*, and the *rule of three inverse;* but this distinction is unnecessary, and the two cases are now generally given under one head by the best modern authors; but as they are still retained by others, it will not be amiss to point out the distinction. The *rule of three direct*, is when more requires more, or less requires less, as in this example: "If three men will perform a piece of work, as, for instance, dig a trench forty-eight yards long, in a certain time, how many yards will twelve men dig in the same time?" where it is obvious, that the more men there are employed, the more work will they perform, and therefore, in this instance, more requires more. Again, "If six men dig forty-eight yards in a given time, how much will three men dig in the same time?" Here less requires less, for the less men there are employed, the less will be the work that is performed by them; and all questions that are in this class are said to be in the rule of three direct. —The *rule of three inverse*, is when more requires less, or less requires more; as in this case—"If six men dig a certain quantity of trench in fourteen hours, how many hours will it require for twelve men to dig the same quantity?" or thus, "If six men perform a piece of work in seven hours, how long will three men be in performing the same work?" These cases are both in the inverse rule; for in the first more requires less, that is, twelve men being more than six, they will require less time to perform the same work; and in the latter, the number of men being less, they will require a longer time. All questions of this class are said to belong to the rule of three inverse. These two cases however, as we before observed, may be brought under one general rule, as follows:—*Rule.* Of the three given terms, set down that which is of the same kind with the answer towards the right hand; and then consider, from the nature of the question, whether the answer will be more or less than this term. Then, if the answer is to be greater, place the less of the other two terms on the left, and the remaining term in the middle; but if it is to be less, place the greater of these two terms on the left, and the less in the middle; and in both cases, multiply the second and third terms together, and divide the product by the first term for the answer, which will always be of the same denomination as the third term.—*Note* 1. If the first and second terms consist of different denominations, reduce them both to the same; and if the third term be a compound number, it is generally more convenient to reduce it to the lowest denomination contained in it.—*Note* 2. The same rule is applicable whether the given quantities be integral, fractional or decimal.

RULES OF LEGISLATIVE BODIES. For those of England, see the article *Parliament;* also the *Precedents of Proceedings in the House of Commons*, 4th ed., 1818, 4 vols., 4to, by Hatsel.) The French chamber of deputies, June 23, 1814, received a full system of rules of ninety-four articles. But there is hardly a session in which the course of the deliberations is not interrupted by violent exclamations, and the hubbub of the majority. In their leading features, the French rules are the same with the British and American. Some of the principal peculiarities are, that, for preliminary investigations, the whole chamber is divided, by lot, into nine committees (*bureaux)*, of which the chairmen, or *reporters*, as they are called, in every case form a committee of nine members, which appoints one of their number to report to the chamber. Private petitions are either wholly rejected (*la chambre passe à l'ordre du jour)*, or delivered to the ministers for consideration. It may, however, happen that they give rise to serious discussions in the chamber. Motions must be put in writing, read, and a day fixed for their discussion. Such a motion, moreover, must, as in other parliamentary bodies, be seconded; and its discussion may be prevented by a call for the previous question. If the further discussion is resolved on, all who wish to speak give in their names to the clerk, and, after the report of the committee, the speakers are heard, in turn, from the tribune. The members do not speak in their places, but from a sort of pulpit. No deputy can speak twice on the same subject. Most of the speeches are still read, and few of the members are able to speak without preparation. The chamber commonly votes by the members on one side of a question rising, and the others remaining seated, and the secretary decides on which side is the majority. But on the passage of laws, the main vote is always taken by balls (*scrutin secret*), in which all the members are called by name (*appel nominal*), every one receives a black and a white ball, and votes by casting one of them in an urn. The chamber of peers, on the contrary, votes by written yeas and nays. Propositions from the king may be submitted to the chambers by the ministers (who, by virtue of their office, have a seat and voice in both chambers), or by special commissioners.

RUM; the distilled liquor obtained from the fermented juice of the sugar cane or molasses. The following is the process employed in Jamaica:—The materials for fermentation are molasses, scummings of the hot cane-juice, or sometimes raw cane-liquor, lees or *dunder* (as it is called), and water. The dunder answers the purpose of yeast, and is usually prepared by a separate fermentation of cane, sweets, and water. The materials being mixed in due proportions (which are about equal parts of scummings, dunder, and water), the fermentation (q. v.) soon begins, and in twenty-four hours the liquor is fit for the first charge of molasses, which is added in the proportion of three gallons for every hundred gallons of the liquor. Another charge is added in a day or two, or afterwards. The heat in fermentation should not exceed 90° or 94°. The fermentation falls in six or eight days, and the liquor grows fine and fit for distillation. In about two hours after lighting the fire, the spirit begins to run, (in a still of 1200 gallons;) and it is collected as long as it is inflammable. The first spirit is called in the country *low wines*; and it is rectified in a smaller still, to the Jamaica proof, which is that in which olive oil will sink. The spirit called *New England rum* is prepared from molasses, and largely exported.

RUM, Island of. See *Hebrides.*

RUMELIA, or RUM-ILI. See *Romania.*

RUMFORD, Count, so called from the title conferred on him by the elector of Bavaria, was born in Woburn, New England, in 1752. His name was Benjamin Thompson. He acquired, when young, a knowledge of natural philosophy, by the aid of the professor of that science in the college of Cambridge. He then employed himself as a teacher, till he was raised to independence by an advantageous marriage, when he became a major in the militia of his native province; and when the war took place between Great Britain and her colonies, his local knowledge enabled him to render services of importance to the English commanders. He went to England, and, as a reward of his services, obtained a situation in the foreign office, under Lord George Germaine. Towards the close of the war, he was sent to New York, where he raised a regiment of dragoons, of which he was appointed colonel, and thus became entitled to half pay. Returning to England in 1784, he received the honour of knighthood, and was for some time one of the under secretaries of state. Soon after, he went to the continent, and, through the recommendation of the prince of Deux Ponts (afterwards king of Bavaria), entered into the service of the reigning elector-palatine and duke of Bavaria, when he effected many important and useful reforms in both the civil and military departments of the state. Among these was a scheme for the suppression of mendicity, which he carried into execution at Munich and other parts of the Bavarian territories, providing labour for able-bodied paupers, and exciting a spirit of industry among the lower orders of the people in general. As the reward of his success in this and other undertakings, he received from the sovereign of Bavaria, various orders of knighthood, was made a lieutenant general, and created Count Rumford. He left Bavaria in 1799, and returned to England, where he employed himself in making experiments on the nature and application of heat, and on other subjects of economical and philosophical research. He likewise suggested the plan, and assisted in the foundation of the royal institution, which led to other establishments of a similar description. In 1802, he removed to Paris, where he took up his residence; and, his wife being dead, he married the widow of the celebrated Lavoisier; but the union proved unfortunate, and a separation ere long took place. Count Rumford then retired to a country house at Auteuil, about four miles from Paris, and there devoted his time to the embellishment of his domain, and to the cultivation of chemistry and experimental philosophy. Though he disliked both the character and politics of the French, he preferred the climate of their country to every other; and he therefore procured permission from the king of Bavaria, to continue in France, and retain the pension of £1200 a year, granted him by that prince. He died in August, 1814, leaving by his first wife a daughter, who resided at Boston, in the United States. Count Rumford was by no means a man of learning, his literary acquirements being confined to the English, French, and German languages; but he was familiar with the discoveries and improvements of modern science, and the industry and perseverance with which he pursued his inquiries enabled him to make some considerable additions to our knowledge of chemistry and practical philosophy. Besides a great number of papers in various scientific Journals, he published four volumes of Essays, experimental, political, economical, and philosophical.

RUMINANT, in natural history, is applied to an animal that chews over again what it has eaten before. This is popularly called *chewing the cud.*

RUMJANZOFF, Nicholas Petrowitsch, count, chancellor of the Russian empire, was the son of the field-marshal Peter Rumjanzoff, or Romanzoff, distinguished in the reign of Catharine by his victories over the Turks. He began his career about 1785, as Russian ambassador at Frankfort on the Maine. He was afterwards minister of commerce, and did much to promote the internal and foreign trade of Russia. In 1807, he became minister of foreign affairs, and soon after, chancellor of the empire. He accompanied the emperor, in 1808, to Erfurt; and, in 1809, concluded peace with Sweden. During the campaign of 1813—14, he remained in Petersburg, at the head of the department of foreign affairs, which, however, were directed, in the imperial camp, by the emperor himself. After the return of the emperor, he resigned the port-folio to count Nesselrode. From this time count Rumjanzoff, who had almost totally lost his hearing, lived retired from public affairs, and devoted his riches to patriotic and scientific undertakings. He promoted greatly the introduction of the system of mutual instruction. Kotzebue's voyage round the world was executed, and the description of it printed, at his expense. The Russian *codex diplomaticus* has been printed, at his expense, at Moscow, since 1813. For professor Hase of Paris, he defrayed the expenses of an edition of Leo Diaconus, and to the imperial academy of science, he gave 25,000 rubles, to be spent in printing old Russian annals and chronicles. He also caused a monument of much importance, as connected with the history of art in the middle ages, the Chersonese gates of the cathedral at Novgorod (containing forty-six biblical and historical scenes), to be described by Adelung, and the work to be printed at his expense. In 1820, he established on his domains (containing one town, ninety villages, and 30,000 souls), at Homel (in the government of Mohilew), a charitable school. He collected from sixty to two hundred of the vagrant and mendicant children of bond-peasants in a wing of his castle, where they were clothed, fed, and taught on the system of mutual instruction and exercised in some trade. To Rumjanzoff, also, we are indebted for the first edition, in the Tartar language, of

Abulgasi's History of the Mongols and Tartars (Kasan, 1825). The count died at St Petersburg, in January, 1826, in the seventy-third year of his age, without children. Among other things, he left a valuable collection of Oriental coins.

RUNCIMAN, ALEXANDER, a painter of considerable note, was the son of a builder in Edinburgh, where he was born in the year 1736. Having shown in his earliest years a decided inclination for drawing, he was placed at fourteen under the care of Messrs John and Robert Norrie, house-painters; the former of whom used to adorn the mantle-pieces of the houses which he was employed to paint, with landscapes of his own, which were then deemed respectable productions, and of which many a specimen is still preserved in the houses of the old town of Edinburgh. The youth devoted himself entirely to his art; and when the academy for rearing young artists was commenced at Glasgow by the brothers Foulis, he became one of its pupils. He soon acquired considerable local fame for his landscapes, but failed entirely to make a living by them. Despairing of success in this branch of art, he commenced history-painting; and in 1766, visited Italy, where he met Fuseli, whose wild and distempered character matched aptly with his own. He spent five years in Rome, assiduously studying and copying the Italian masters; and in 1771, returned to his native country, with powers considerably increased, while his taste, formerly over-luxuriant and wild, had experienced a corresponding improvement. Just at that time a vacancy had occurred in the mastership of a public institution, called the Trustees' academy; and the place, to which was attached a salary of £120, was offered to and accepted by Runciman. Being thus secured in the means of subsistence, he applied his vacant time to historical painting, and produced a considerable number of specimens, which were regarded with much favour, not only in his native country, but also in England, where several of them were exhibited. Among his productions may be mentioned, Macbeth and Banquo, in a landscape; a Friar, in a landscape; Job in Distress; Samson strangling the Lion; Figure of Hope; St Margaret landing in Scotland, and her Marriage to Malcolm Canmore, in Dunfermline abbey; Christ talking to the Woman of Samaria; Agrippina landing with the Ashes of Germanicus; the Princess Nausica surprised by Ulysses; Andromeda; Sigismunda weeping over the Heart of Tancred; the Ascension (in the Cowgate episcopal chapel, Edinburgh): the Prodigal Son (for which Ferguson the poet was the study); and the paintings in Ossian's Hall at Pennycuik. The work last mentioned was the *chef d' œuvre* of Runciman. The principal paintings are twelve in number, referring to the most striking passages in Ossian's Poems. The task was one of no small magnitude, but the painter dreamt of rivalling the famed Sistine Chapel, and laboured at his work with only too much enthusiasm. In consequence of having to paint so much in a recumbent posture, and perhaps denying himself that exercise which the physical powers demand, he contracted a malady which carried him slowly to the grave. He died, October 21, 1785, dropping down suddenly on the street, when about to enter his lodgings. Runciman was remarkable for candour and simplicity of manners, and possessed a happy talent for conversation.

RUNIC ALPHABET AND **WANDS**. This alphabet, peculiar to the ancient northern tribes of Europe (Germans and Scandinavians), is considered, by some scholars, to have existed before the Christian era; by others, to have originated later. The similarity of a few Runic characters to corresponding Roman ones, proves nothing, as it prevails with but a few of them; moreover, the Runic alphabet has but sixteen characters: this limited number is hardly reconcileable with the idea of the Scandinavians having borrowed it from the Romans. Rude nations want many, rather than few, characters for their undefined sounds. Yet could the northern tribes, immersed as they were in ignorance, have invented their own alphabet? Frederic von Schlegel advances the hypothesis, that the Phœnicians, navigating in early antiquity to the coasts of the Baltic, might have carried the art of writing to those northern regions, and that the Runic grew out of the Phœnician characters, and was preserved by the priests, together with several magic arts. The similarity of a few of the Runic signs to those of the Romans, might be explained by the fact, that the Romans themselves received their characters from an Eastern source. The fact, that in Spain and other countries in the south-west of Europe, remains of the Runic and Runic stones (tomb-stones, land-marks, &c.,) are met with, is to be explained from the influx of the tribes of ancient Germany and Scandinavia into those countries at the time of the general migration of nations. W. C. Grimm, in his *Ueber Deutsche Runen* (Göttingen, 1821), endeavours to show that the Germans had, probably, in ante-historic times, characters of more than accidental similarity to those of the Greek and other alphabets, and that the German Runic, properly so called (that of the Saxons of the northern Elbe), is between the ancient northern (Scandinavian) Runic and the Anglo-Saxon; so that the German Runic originated from the former, and produced the latter. The word *rune* he derives, as Mone does, from *rùnen* (i. e. to make a slight incision or scratch): others derive it from the German *raunen* (i. e. whisper); hence *runic*, as designating a secret, mysterious writing, belonging to the priests. According to Dahlmann and Kopp, the northern Runes are of later origin than is generally supposed. The Runic *codices* are proved to be of less antiquity than some written in common characters. Langebeck found, in 1753, that none of the numerous Runic writings in Gothland reached back farther than the year 1200 of our era; the latest were of the year 1449. (See Brynjulf's work on the Runes, and Rasmus Nyerup's works.

Runic wands were willow wands, inscribed with mysterious characters, and used by the heathen tribes of the north of Europe, in the performance of magic ceremonies. Such wands were also employed by the ancient inhabitants of Sweden and Norway, to note the succession of time. To this day, the peasants of those countries use similar wands instead of an almanac; and in Germany sticks are used in keeping the ordinary accounts between families and the persons from whom they receive their daily supplies; for instance, the family and the baker each have a stick, and the two are put together, and a notch made in them with a file, when bread is delivered; thus each has a check on the other.

RUNNYMEDE, in England; the celebrated meadow where the conference was held, June 15, 1215, between John and the English barons, in which the former was compelled to sign *Magna Charta* and the *Charta de Foresta*. (See *John.*) It is five miles east of Windsor, in Surrey, and is now divided into several enclosures.

RUPERT OR ROBERT OF BAVARIA, prince, the third son of Frederic V., elector palatine and titular king of Bohemia, by the princess Elizabeth of England, daughter of James I., was born in 1619, and, becoming an exile through the misfortunes of his father, at the commencement of the civil war in England, he offered his services to his uncle, Charles I., and had the command of a corps of cavalry, at the head of which he distinguished himself at the battle of Edgehill, in 1642, and at Chalgrave Field, in 1643. Soon after, he took Bristol, and obliged the enemy to raise the sieges of Newark and of York He displayed his courage at Marston Moor and at Naseby; but his impetuosity and imprudence contributed to the disastrous result of those engagements. He afterwards shut himself up in Bristol; but, having surrendered that place, after a short siege, to Fairfax, his conduct so much displeased the king, that he dismissed the prince from his service. He then went abroad, and, after the death of Charles I., he was made commander of that part of the fleet which adhered to Charles II., in 1648. Prince Rupert for some time carried on a predatory warfare against the English, and at length sailed to France, and joined Charles II. at the court of Versailles. His time was chiefly devoted to scientific studies, till the restoration, when he returned to England. In 1666, he was appointed, in conjunction with Monk, to the command of a fleet against the Dutch; and, in the next war with Holland, in 1673, was made admiral of the fleet. In 1679, he was nominated a member of the new privy council; but from that period he interfered but little in public affairs, leading a retired life, and spent much of his time at Windsor castle, of which he was governor. Many useful inventions resulted from his studies, among which are the invention of prince's metal, and the discovery of the method of engraving in mezzo-tinto. The prince died in London, 1682.

RUPERT'S DROPS, OR GLASS TEARS. See *Annealing*.

RUPTURE. See *Hernia*.

RURAL WAR. See *Peasants' War*.

RUSCSUCK, ALSO RUSTSCHUK, in Bulgaria, in the sangiacat of Nicopolis, is situated on the right bank of the Danube, at the confluence of the Lom, and almost opposite Giorgiev, The city, formerly an important fortress, has extensive works and a castle. It is the see of an archbishop, and has 30,000 inhabitants; partly Turks, partly Greeks, Armenians, Gypsies and Jews; and carries on an active trade, manufactures silk, wool, cotton, leather, tobacco, &c. Ruscsuck is of the highest importance in a military point of view, as the wars between Russia and the Porte, in 1809, 1810, and 1811, have proved.

RUSH. This term is, strictly speaking, applied to the different species of *juncus*, sedge-like plants, chiefly growing in marshes, with inconspicuous greenish flowers, though belonging to the class *hexandria* of Linnæus. The *J. effusus*, or soft rush, is a common plant, in low grounds, in the more northern parts of the eastern and western continents, and is rendered conspicuous by its tufts of long awl-shaped leaves and stems, somewhat resembling the spines of a porcupine. The flowers are in loose, lateral panicles. The leaves and stems are used for making mats, baskets, and children's ornaments, and their pith is used for wicks to burn in lamps. The species of *juncus* are herbaceous plants, inhabiting the northern hemisphere, with fibrous and usually perennial roots; their leaves are cylindrical or a little compressed, often containing transverse internal partitions, which give them a jointed appearance; their flowers are small, greenish or brownish, terminal or lateral, and generally disposed in panicles or corymbs. The different species of *scirpus*, or club-rush, are common in marshes. They are distinguished by having their flowers disposed in little solid oval spikelets; in some species, terminal and solitary; in others, forming wide-spreading panicles. The bull-rush (*S. lacustris*) is aquatic, growing in deep water throughout the northern hemisphere. It is used for the bottoms of chairs, and, for the finer sort, is cut when a year old. Cottages are sometimes thatched, and pack-saddles stuffed with it. The Chinese cultivate the *S. tuberosus*, or water chestnut, in tanks, the bottoms of which are manured and exposed for a time to dry in the sun. The tubers of the roots are eaten either boiled or raw, and are esteemed both as food and medicine. This plant has not yet been introduced into Europe.

RUSH, BENJAMIN, M. D., was born on the 24th December, 1745 (old style), near Philadelphia, and, in 1759, entered the college of Princeton, where he graduated, in 1760, before he had completed his fifteenth year. The next six years of his life were devoted to the study of medicine. During his novitiate, he translated the aphorisms of Hippocrates into English, and also began to keep a note-book of remarkable occurrences, which he continued through life. From a part of this record, written in the seventeenth year of the author's age, we derive the only account of the yellow fever of 1762, in Philadelphia. In 1766, he went to Edinburgh to study at the university in that city, and took his degree of M. D. there in 1768. The next winter he spent in London; in the spring, he went to France; in the autumn, he returned to Philadelphia, and commenced the practice of his profession. In 1769, he was elected professor of chemistry in the college of Philadelphia, and when, in 1791, the college was merged in the university of Pennsylvania, he was appointed professor of the institutes and practice of medicine, and of clinical practice. In the previous year, he had begun to publish his new principles of medicine, depending chiefly for the cure of diseases upon bleeding and cathartics; and these were more or less developed by him in his successive annual courses of lectures, for the subsequent twenty-three years of his life. In the year 1793, when Philadelphia was desolated by the yellow fever to an extent almost equal to that of the ravages of the plague in the old world, the theories and the active strength of doctor Rush's genius were put to the test. All the physicians, for some time after the commencement of this disease, were unsuccessful in its treatment. Doctor Rush adopted a new mode of treatment, to which he was led by a manuscript of doctor Mitchell of Virginia, respecting the yellow fever which prevailed there in 1741. His success was great, and naturally brought him a great increase of practice. He had scarcely a moment of repose. Whilst at his meals, his house was filled with persons, chiefly the poor, waiting for his advice; every day he was obliged to refuse numerous applications, and in riding through the streets, he was often forced to tear himself away from persons who attempted to stop him, and to drive his chair as speedily as possible out of the reach of their cries. His incessant labours of body and mind, by night and day, nearly cost him his life; but by timely and proper treatment, he was rescued from the grave. This was the most eventful year of his life, and in it he laid the foundation of a reputation inferior to few in the annals of medicine. Doctor Rush did not confine his attention exclusively to the practice of his profession, but took an active and zealous part in political affairs. He was an ardent friend of liberty, and was one of the signers of the Declaration of Independence. In 1777, he was appointed physician-general of the military hospital in the middle department; some time after which, he published his observations on hospitals, army diseases, and the effects of the revolution on the army and people. In 1787, he was a member of the convention of Pennsylvania for the adoption of the federal constitution, which received his warmest approbation. During the last fourteen years of his life, he was treasurer of the United States' mint. Doctor Rush took a deep interest also in the many private associations for the advancement of human happiness with which Pennsylvania abounds. He was an honorary member of many of the literary institutions, both of his own country and of Europe. He died April 19, 1813, in the sixty-eighth year of his age. Notwithstanding his great labours as a lecturer and practitioner, he was a voluminous writer, having, during forty-nine years, from the nineteenth year of his age to within a short period of his death, been constant in the employment of the pen. His printed works consist of seven volumes, six of which treat of medical subjects, and the other is a collection of essays—literary, moral and philosophical. He also wrote various political essays, which were published in the papers of the time.

RUSHWORTH, John, an industrious collector of historical matter, born in 1607, was, for some time, a student at Oxford, which he quitted for Lincoln's-inn, where he remained until he was called to the bar. He was, however, more attached to politics than to law, and made it his business to attend parliament, the star-chamber, and other courts, when important business was transacting, in order to take notes of what he saw and heard. In 1640, he was assistant clerk of the house of commons; and when Sir Thomas Fairfax became general of the parliamentary forces, he was appointed his secretary. He was a member of parliament in 1658, and, in 1660, he was re-elected for Berwick in the healing parliament. In 1667, he was made secretary to Sir Orlando Bridges, keeper of the great seal, but, after the decease of that lawyer, was arrested for debt, and committed to the king's bench prison, where he died in 1690. His Historical Collection of private Passages in State, weighty Matters in Law, and remarkable Proceedings in Parliament, was published at different times, in folio, until it amounted to eight volumes, including the trial of the earl of Strafford, published in 1680. The first seven volumes of these were reprinted uniformly in 1721.

RUSSELL, Lord William, third son of the first duke of Bedford, and a distinguished supporter of liberty, was born about 1641. He was educated in the principles of constitutional freedom espoused by his father, and yielded to the vortex of dissipation introduced by the restoration, until his marriage with Rachel, second daughter and co-heiress of the earl of Southampton (then widow of lord Vaughan), which wholly reclaimed him. He represented the county of Bedford in four parliaments, and, being highly esteemed for patriotism and independence, was regarded as one of the heads of the whig party. When Charles II., exasperated at the court of France for withdrawing his pension, appeared desirous of joining the continental confederacy against Louis XIV., a French war being generally popular in England, the parliament voted a large supply of men and money. The whigs, aware of the king's character, dreading to give him an army, which might as probably be employed against liberty at home as against France, opposed the measure. This movement being acceptable to the French king, an intrigue commenced between the leading whigs and Barillon, the French ambassador, the consequence of which was the receipt, on the part of some of them, of pecuniary assistance, in order to thwart the intended war. From that minister's private despatches, Sir John Dalrymple, in his Memoirs of Great Britain, has published a list of those persons; but lords Russell and Holland are specified as refusing to receive money on this account. (See *Sidney, Algernon.*) In 1679, when Charles II. found it necessary to ingratiate himself with the whigs, lord Russell was appointed one of the members of the privy council. He soon, however, found that his party was not in the king's confidence, and the recall of the duke of York, without their concurrence, induced him to resign. Although his temper was mild and moderate, his fear of a Catholic succession induced him to take decisive steps in the promotion of the exclusion of the duke of York. In June, 1680, he went publicly to Westminster-hall, and, at the court of king's bench, presented the duke as a recusant; and, on the November following, carried up the exclusion bill to the house of lords, at the head of two hundred members of parliament. The king dissolved the parliament, and resolved thenceforward to govern without one; and arbitrary principles were openly avowed by the partisans of the court. Alarmed at the state of things, many of the whig leaders favoured strong expedients, in the way of counteraction, and a plan of insurrection was formed for a simultaneous rising in England and Scotland. Among these leaders, including the dukes of Monmouth and Argyle, the lords Russell, Essex and Howard, Algernon Sidney and Hampden, different views prevailed; but lord Russell looked only to the exclusion of the duke of York. While these plans were ripening, a subaltern plot was laid by some inferior conspirators, for assassinating the king on his return from Newmarket, at a farm called the *Ryehouse*, which gave a name to the conspiracy. Although this plan was not connected with the scheme of the insurrection, the detection of the one led to that of the other, and lord Russell was, in consequence, committed to the Tower. After some of the Ryehouse conspirators had been executed, advantage was taken of the national feeling, to bring him to trial, in July, 1683; and pains being taken to pack a jury of partisans, he was, after very little deliberation, brought in guilty of high treason. "It was proved," says Hume, "that the insurrection had been deliberated on by the prisoner; the surprisal of the guards deliberated, but not fully resolved upon; and that an assassination of the king had not been once mentioned or imagined by him." The law was, on this occasion, stretched to the prisoner's destruction, and his condemnation was deemed illegal by judge Atkins and many other authorities, not to dwell on the act which on this ground reversed his attainder. Once condemned, such a victim was too agreeable to the court, and to the vindictive feelings of the duke of York, to meet with mercy; and the offer of a large sum of money from his father, whose only son he had now become, to the duchess of Portsmouth, and the pathetic solicitations of his wife, proved in vain, and he obtained remission only of the more ignominious parts of his sentence. He was too firm to be induced by the divines, who attended him, to subscribe to the doctrine of non-resistance, then the favourite court tenet of the day; and it is to be regretted that he was induced to write a petitionary letter to the duke of York, promising to forbear all future opposition, and to live abroad, should his life be spared. It is presumed that this letter was written in compliance with the solicitations of his friends, for he nobly refused the generous offer of lord Cavendish to favour his escape by exchanging clothes; and, with equal generosity, declined the proposal of the duke of Monmouth to deliver himself up, if he thought the step would be serviceable to him. Conjugal affection was the feeling that clung closest to his heart; and when he had taken the last farewell of his wife, he exclaimed, that the bitterness of death was past. He was beheaded in Lincoln's-inn fields, July 21, 1683, in the forty-second year of his age. To the character of this regretted nobleman for probity, sincerity, and private worth, even the enemies to his public principles have borne ample testimony. Of his talents, Burnet observes, that he was of a slow but sound understanding. Lord John Russell has written a life of lord William Russell.

Lady *Rachel Russell*, his wife, by the affectionate zeal with which she assisted her husband, and the magnanimity with which she bore his loss, obtained the respect and admiration of the world. Upon his trial, she accompanied him into court; and when he was refused counsel, and allowed only an amanuensis, she stood forth as that assistant, and excited the respect and sympathy of all who beheld her. After his death, she wrote a touching letter to the king, in which she asserted that the paper delivered by him to the sheriff, declaratory of his innocence, was his own composition, and not, as charged by the court, dictated by any other person. She spent the remainder of her life in the exercise of pious and social duties. A collection of her letters was published in 1775 (4to.). This exemplary woman died in 1723, aged eighty-seven.

RUSSIA. The Russian empire stretches over half Europe. and the whole of Northern Asia, from the Baltic to the Pacific, and includes vast territories on the north-western coast of North America. It lies between lat. 38° and 79° N., and lon. 19° E. and 130° W., extending through 211 degrees of longitude. It is bounded N. by the Northern or Icy ocean; W. by Norway, Sweden, the Baltic sea, Austria and Prussia; S. by Turkey, the Black sea, Persia, the Caspian sea, Independent Tartary, China, and the United States of North America; and E. by the British possessions in North America. The total superficial area is estimated at 8,000,000 square miles, of which about 1,500,000 are situated in Europe, and 5,600,000 in Asia. The southern boundary of the American possessions of Russia was fixed by the convention of 1824, between Russia and the United States, at 54° 40′ N. lat. The Russian dominions compose about one seventh of the habitable globe. European Russia is for the most part level, but in the southern parts the face of the country is somewhat uneven. Between the Black and Caspian seas is the Caucasus; in the south-west are branches of the Carpathian mountains, and in the north-west the elevated plain of the Wolchonski forest. In the east is the Ural chain, dividing Europe from Asia, and terminating at the Frozen ocean. Several branches of this chain shoot off into Asiatic Russia, among which are the Schooget, with its salt mines, the Sok mountains, the Little Altai, the Baikal mountains, the Apple and Stanwowoi mountains, which form the Chinese and Russian boundary, and extend to the Tchutschian peninsula. The south-western part of Russia consists of steppes, which are either uninhabited, or furnish pasture-grounds to nomadic tribes. The climate is various. In the south, the winters are short and mild, the spring early, the summers long and hot, with little rain, and a late autumn. In central Russia, the winters are longer and more severe, particularly in the eastern parts, and the summers shorter; in the north, quicksilver freezes so as to be malleable even in a warm room, and the waters are frozen from October to the end of May. In central Russia corn is raised in considerable quantities, but in the northern parts the crops are small and uncertain. Washed by the Frozen ocean, which forms the White sea and the basins of the Obi, Yenissey and Lena, on the north; by the Pacific ocean, with Beering's and Cook's straits, and the gulfs or bays of Anadyr and Kamtschatka or Okotsk, on the east; by the Black sea on the south; and by the Baltic, with the gulfs of Bothnia, Finland and Riga on the west,—Russia has two great declivities, the one towards the north-east and north-west, and the other towards the south. Down these flow the Dwina, with the Jug and the Suchowna, the Petchora, the Obi, the Yenissey and the Lena, in the north; the Duna, the Niemen, and the Neva, in the north-west; and the Don, the Dnieper, the Cuban, the Volga and the Ural, in the south. Besides numerous salt springs and small lakes, Russia contains fourteen large bodies of water, among which are the Caspian sea, lakes Ladoga, Onega and Peipus, lake Sak, in the Crimea, and lakes Baikal, Aral and Altin. Artificial water communications are constantly increasing on a systematic plan. The canals of Vishney-Volotchok, connecting Petersburg with Astrachan, the Novgorod canal, the Beresina canal, connecting the Baltic and Black seas, and the Ladoga canal, by which the navigation of the tempestuous Ladoga is avoided, are among the most important. A system of water communication extends through Siberia, from the Chinese wall to Petersburg, Archangel and Riga, so that European wares can be procured at moderate prices in Kolyvan, Tomsk and Irkutsk.

Russia raises much more corn than it consumes. Fruits and wine are produced in abundance. The forest also yields important articles of export, besides supplying the consumption: mulberry trees have been planted to a great extent. The raising of cattle, horses and sheep, the keeping of bees (600,000 pounds of wax and honey can be annually exported), and silk-worms (furnishing 16,000 pounds of silk yearly), are profitable occupations. Camels, buffaloes, and wild animals of all sorts, are also numerous. The annual product of the fisheries is reckoned at 15,000,000 roubles. Gold (from the Beresov mines), silver (from the Kolyvan and Nertchinski mines), platina, copper, iron, zinc, quicksilver, alum and salt (to the yearly amount of

500,000,000 pounds), are among the mineral productions. The total value of the natural productions of the empire is estimated to exceed 40,000,000 roubles.

The population of Russia, including Poland and Finland, is 57,000,000, of nine different races:—1. Sclavonians, 44,000,000, including the Russians (42,000,000 among whom are the Cossacks, about 600,000 capable of bearing arms) and the Poles; 2. Finns, who are scattered over the country, from Tornea and the Niemen to the Obi (3,000,000); 3. Tartars from the Dniester to the Caucasus (2,000,000), mostly under their own government, without agriculture or fire-arms; 4. Georgians and Circassians (2,000,000); 5. Samoiedes; 6. Mantchoos; 7. Mongols, to whom belong the Calmucks; 8. eastern tribes (including Tchutsches, Kuriles and Aleutians); 9. Jews, particularly in the Polish provinces. Besides these races, there are natives of almost all countries of Europe and Asia, as Greeks, Arabs, Hindoos, Gypsies, French, British and Danes. There are among these Russian subjects eighty tribes, differing in language, religion and manners, from the rudest state of barbarism to the highest degree of European civilization. The population is divided into four classes, the nobility, clergy, common people or freemen, and peasants or serfs. In 1811, the number of persons subject to do military duty was as follows: 643,135 persons engaged in trade; 6,389,279 crown peasants; 10,113,177 peasants belonging to individuals; 1,077,636 appanage peasants; 112,453 freemen; in all, 18,335,730 men.

We find manufactures of leather, tallow, candles, soap, felt, coarse linen, mats of the bark of the linden tree, hardware, and the art of dyeing, among the Russians before the time of Peter the Great; but since his reign these have been carried to much greater perfection, and many new manufactures have been introduced. In 1815, Russia contained 3253 manufacturing establishments; twenty-three of these deliver to the government annually cloth of 700,000 roubles in value, and there are, besides, 181 private establishments. Drugs are prepared in forty-five laboratories; and there are distilleries of brandy, of which 120,000,000 gallons are consumed in the country. Ship building is carried on in the large villages on the Wolga and in the scaports. On the Wolga, boats are built without iron, which are eventually used in Petersburg, Astrachan and other cities for fuel. The fabrication of fire-arms is the most important branch of metallic manufactures; in Tula alone 17,000 muskets, 6500 pair of pistols, and 16,000 side-arms, are made by about 6000 workmen. The board of manufactures, in Moscow and Petersburg, has the superintendence over all the branches of manufacturing industry. The commerce is carried on partly by land and partly by sea. The inland commerce is neither impeded by tolls nor staples, but is facilitated by navigable rivers, lakes, canals, the snow in winter, and the great fairs, especially at Novgorod. Goods may be exported from any port or frontier place, but can be imported only into Petersburg, Riga and Odessa. The foreign land trade in Asia is with China, Persia, Bucharia, and the Caucasian countries, and in Europe with Turkey, Galicia, Prussia, Silesia and Saxony. This branch of trade is chiefly in the hands of Armenians, Bucharians and Jews, while the maritime is chiefly carried on by the British. Since 1815, the yearly value of the imports by sea has amounted to 28,000,000 roubles, and that of the exports to 45,000,000. The board of commerce in Petersburg is the supreme tribunal in all commercial matters. In 1770, a bank was established, whose paper is at par, and has afforded great facilities to the inland trade.

The government is an unlimited monarchy; the emperor is autocrat of all the Russians; the state is indivisible; the ruler cannot be, at the same time, ruler of any other country (since 1815, however, he has been king of Poland), and must be of the Greek religion. In 1797, the succession was settled in the male line, by the rules of primogeniture, and, in failure of males, in the female line. All the princes of the blood are called grand-princes. By the ukase of March 20, 1820, it was declared that only the children of a marriage acknowledged by the emperor are capable of succeeding to the throne. The highest councils are, 1. the imperial council, under the presidency of the emperor, erected Jan. 1, 1810, with four departments—that of legislation (the supreme tribunal in civil and ecclesiastical suits), that of war, that of civil and ecclesiastical affairs, and that of finance; 2. the senate, for home affairs (a deliberative body, consisting of eight departments, three of which have their seat in Moscow); 3. the holy synod; 4. the ministry of state. The ministers have a seat and voice in the imperial council and in the senate. The ministry is divided into three sections—that of foreign affairs, war, the marine, the home department, ecclesiastical affairs, education and finance; that of the imperial treasury; and that of the public accounts, roads and canals, and justice. The whole state is divided into fifty-one governments and several provinces; of these, forty are in Europe, exclusive of the Cossacks of the Don, the Cossacks of the Black sea, and the kingdom of Poland. The revenue, including that of Poland, amounted, before the recent disturbances, to £12,375,000; the public debt, in 1824, was £38,250,000. The bank paper, which, since 1817, has been in a course of redemption, was about £33,750,000.

The army, in 1822, consisted of more than 1,000,000 men, among whom 613,000 were infantry, 118,000 cavalry, 47,000 artillery, 105,000 irregular cavalry, 77,000 in garrison, 27,000 supernumeraries, and 50,000 forming the Polish army. In 1827, the number of troops was 649,300, exclusive of 20,000 officers, which, in 1828, was increased, on account of the Turkish war, to 870,000. (See *Military Colonies.*) The navy has its principal station on the Baltic; it consists, according to the most probable accounts, of thirty-two ships of the line, twenty-five frigates, twenty corvettes and brigs, eighty-seven smaller vessels, twenty-five floating batteries, and 121 gun-boats, with 6000 cannon and 33,000 men. The principal naval station, on the Baltic sea, is Cronstadt, and, on the Black sea, Sebastopol. There are some ships on the Caspian. No country in Europe supports its military forces so cheaply as Russia.

The prevailing religion is that of the Greek church, with a full toleration of all religions; all Christian sects enjoy equal privileges. The supreme direction of the affairs of the Greek church is intrusted to the holy synod at Petersburg; subordinate to this are twenty arch-priests, with the same number of consistories, and 68,000 secular clergy; there are 480 male and eighty female convents, with 7300 monks and 1300 nuns, all of the rule of St. Basil. (See *Greek Church.*) Those who adhere to the old Greek church are called *Roskolnicians.* There are about 40,350,000 members of the Greek church (including 570,000 Roskolnicians); 6,000,000 Catholics and united Greeks; 2,400,000 Lutherans; 83,000 Calvinists; 9200 Herrnhutters; 6000 Mennonites; 100,000 Armenians; 3,100,000 Mahometans; 500,000 Jews; 300,000 worshippers of the grand lama; and 600,000 fetichists.

For all branches of education, Russia has numerous and excellent institutions, among which are the eight universities of Moscow, Helsingfors, Wilna, Dorpat, Petersburg, Charkow, Kazan and Warsaw. In 1829, the number of students was 3647. There are, also, a number of primary and intermediate schools; in 1824, the whole number was 1411, with 69,269 scholars, besides 344 schools maintained by the Greek clergy for the lower classes, with 45,851 pupils. The Petersburg Bible society, instituted by the emperor Alexander, had, in 1818, 128 branches, and has printed the Bible in twenty-nine languages. One hundred and fifty years ago, there were only two printing establishments in Russia; there are now sixty-one.

The population of Russia is composed of four different classes, as has already been mentioned. The boors or peasants are the property of the crown or of individuals; they amount to about 35,000,000, and are in a state of great poverty. The following cut represents their usual costume:—

They are sometimes emancipated by their owners, and are sometimes permitted to purchase their freedom. The noble families are about 150,000, comprising 750,000 individuals, and enjoy some privileges and exemptions. The freemen, not nobles nor clergymen, are divided into six classes—the inhabitants of cities, the three guilds (capitalists, according to their income tax), the trades, foreigners or strangers, the notable citizens (*savans*, artists, bankers), and the colonists. In regard to rank, these classes form fourteen gradations; and all who can claim either of the eight highest are considered as noble. Russia has six orders, of all of which the emperor is grand-master. The order of St Andrew, the oldest and most distinguished, was founded by Peter I., November 30, 1698, as a military order of merit, for those generals who had distinguished themselves in the Turkish war. The female order of St Catharine was founded by Peter I., November 24, 1714, in honour of his wife, Catharine, who had rescued him from his difficult situation on the Pruth. The Alexander Newsky order was instituted by Peter I.; but the arrangements were completed by Catharine I., August 30, 1725. The military order of St George was revived by Alexander in 1801. The order of St Wladimir, for civil and military merit, instituted by Catharine II., (1782), was revived by Alexander, (1801). The order of St Anne is an order of merit for all ranks, and even foreigners. The spiritual order of St John, instituted by Paul in 1797, has a Greek priory, with 128,000 roubles income, and a Catholic priory, with 84,000 roubles income.

The present reigning house of Holstein-Gottorp was preceded by that of Romanoff, the first prince of which, Michael Feodorowitsch, ascended the throne in 1613, and died in 1645. His successors were Alexis Michailowitsch, died 1676; Feodor Alexiewitsch, died 1682; Ivan Alexiewitsch, and Peter I., Alexiewitsch, the former till 1688; the latter assumed the title of emperor in 1721, died 1725; Catharine, empress, died 1727; Peter II., died 1730; Anna, died 1741; Ivan III., deposed 1740; Elizabeth, died 1762:—House of Holstein-Gottorp: Peter III., deposed 1762; Catharine II., the Great, died 1795; Paul I., died 1801; Alexander, died 1825. Nicholas I., Paulowitsch, born July 7, 1796, married, July 13, 1817, the Prussian princess Charlotte, (born July 13, 1798), succeeded his brother Alexander, after the renunciation of the throne by his elder brother Constantine Cæsarowitsch, in December, 1825. The heir apparent is Alexander Nicholaiewitsch, born April 29, 1818; the other children of the emperor are, Maria, born 1819; Olga, born 1822; Alexandra, born 1825; Constantine Nicolaiewitsch, born 1827. The emperor has one brother, Michael, born 1798, and two sisters, Maria, wife of the duke of Saxe-Weimar, and Anna, (born 1795), wife of the prince of Orange. The sons and daughters of the imperial house have the title of grand-princes, and grand-princesses of Russia, with the style of imperial highness. (See *Statistique de la Russie*, by Schnitzler, Paris, 1829.)

After these statistical sketches, let us now throw a glance at what has been effected by the government, for the most important public interests, during the last twenty years. Civilization has made rapid progress during this period; the peasants, in general, have acquired some legal protections against the caprice of their masters, and the great work of emancipation has been effected in the Baltic provinces. In 1818, the nobility of Courland abolished villenage, and in 1819 the Livenian nobles made a provision for its gradual extinction, by which all peasants born after that year were declared to be born free, and all bondage was to cease after 1826. In 1823, the emperor directed the imperial council to take measures for preventing the sale of the peasants, independently of that of the land to which they are attached. In the military colonies, there are no serfs. The settlement of foreign colonists in Russia has been encouraged, and the German and Swiss have emigrated in great numbers to the southern parts of Russia. The government has also made grants of wild lands, in the southern districts, to military veterans, and, by a ukase of 1822, the crown peasants of the provinces, in which the land is poor, are permitted to settle on the fertile lands in Siberia. Some of the nomadic tribes have begun to practise agriculture, and receive assistance from the government, which requires them, however, to embrace Christianity. The Jews have been encouraged to turn their attention to agricultural and mechanical industry; and agricultural societies and schools have been established. In 1820, the number of sheep in Russia was estimated at more than sixty millions; and the wool exported from Odessa was considered equal to the best Spanish. The army is clothed in domestic woollens. The discovery of gold and platina in the Ural mountains (see *Ural*), in 1821 and 1823, is of the highest importance, and government has done much to promote the science of mining, and the establishment of salt works. The cultivation of the grape has been introduced, with the happiest results, in Siberia. The subject of education has also received the attention of government: the management of this department belongs to the ministry for ecclesiastical affairs. In 1823, besides the seven universities, there were eighteen institutions for the promotion of science and the arts, and in 1824, observatories were erected at Nicolaieff, on the Black sea, and at Moscow. There are also gymnasia, provincial schools, and schools for the instruction of the lower classes on the Lancasterian plan. The different religious denominations have good theological institutions, and the Bible has been widely disseminated, in different languages, among the people. Some distinguished patrons of science, as well as the government itself, have caused scientific voyages and journeys to be prosecuted at their own expense. (See *Kotzebue*, *Krusenstern*, *Romanzoff*, and *North Polar Expedition*.) The legislative committee, by order of the emperor, published the Institutions and Pandects of the Russian law, in 1819—23, in twenty-two volumes. A complete collection of the Russian laws and legal decisions has been published since 1821, and there is also a collection of the criminal laws, in sixteen volumes (1753—1826), and a collection of the laws relating to the taxes, the public accounts, the investigation of the condition of the population, &c., (21st vol., 1827). Among the particular laws, the ukase of 1822, abolishing the practice of branding, after the punishment of the knout, deserves mention.

Russia, History of.—1. *Early History.* A number of nomadic tribes, reaching to the confines of the Roman Empire, were comprehended under the name of Scythians and Sarmatians. They inhabited the countries between the Don and Dnieper, described by Herodotus. Strabo and Tacitus mention, also, the Roxolani as a Sarmatian tribe. In the second century of the vulgar era, the Goths came from the north into the countries between the Don and the Danube. From the fifth century, the Alans, Huns, Avars and Bulgarians followed each other in this region. The Slavi, a Sarmatian tribe, retired more to the west and north; the Chazars, pressed by the Avars, entered, in the sixth century, into the countries between the Wolga and the Don, pressed forwards by degrees to the Danube, conquered the Crimea, and thus came into close contact with the Byzantines. (The empress Irene was a Chazarian princess.) The Petchenegues, who were of a kindred stock with the Chazars, and dwelt along the Caspian sea, moved towards the west, and pressed the Hungarians to Pannonia, whilst they occupied the countries between the Don and the Aluta. In the north of Russia dwelt the Tschuds (Finns and Esthonians), Finnish tribes. All these tribes were wandering herdsmen and hunters. At a later period only, a part of them acquired some degree of civilization by entering the provinces of the Roman empire, coming into contact with the Byzantines, and embracing Christianity. The Sclavonic tribes showed earliest the germs of civilization. They passed, in the fifth and sixth centuries, from the northern part of the Danube down the Vistula, and up the Dnieper. They built the two cities Novgorod (*novus hortus*[*]) and Kiev, which at a later period, became powerful by means of their commerce, but, at the beginning, suffered greatly from the Chazars. Novgorod also suffered from the Varagians, a piratic tribe on the Baltic, and therefore sent to beg their protection, offering to submit to their sovereignty in return. Induced by this offer, many of this tribe went, in the year 862 (according to Nestor, from the other side of the sea[†]), under the conduct of the brothers Ruric, Sineus and Truwor, their chieftains, and founded three principalities in the neighbourhood of the city of Novgorod. After the death of his brothers, Ruric ruled alone, and united his countrymen and the Slavi into one people—the Russians. The new state, with a military organization, embraced Northern Russia, and was known under the name of Holmgard, Gardarike, and Ostrogard. Ruric died in 879. His son Ighor, under his guardian Oleg (Olaf), conquered Kiev, and made it his capital. Ighor's widow and successor embraced Christianity in 955, in Constantinople. Hence the introduction of the Greek ritual into Russia. The grandson of Ighor, Wladimir I. of Novgorod, the Saint, or the Great, united the whole of Ighor's dominions in 980. He made extensive conquests, married the Greek princess Anna, was baptized, at Cherson, in 987, and died in 1015, having endeavoured to give his people a higher degree of civilization. He divided his dominions among his twelve sons: according to the Slavonic custom, the various territories inherited by his sons were to remain under the grand principality of Kiev; but bloody family wars ensued for the dignity of grand-prince. Wladimir II., remotely connected with this line, was elected grand-prince by the people of Kiev, in 1114. Alexius Comnenus, the Byzantine emperor, acknowledged him as czar. His son George built Moscow in 1147. The surrounding nations took advantage of the internal dissensions of the country to invade it. The most dangerous of these neighbours were the Mongols (from 1223). After a devastating war of fifteen years, and when the grand-prince George II. had fallen in battle at Sita, in 1238, against the khan Batu, the Mongols occupied all Russia, Novgorod only being excepted by treaty. In respect to civilization, the Russians were then in a low condition, owing to the variety of tribes of which they were composed, and their military organization. Commerce was chiefly in the hands of German merchants, who, since 1200, had entered the country with the missionaries from the Dwina. Novgorod and Kiev were the chief commercial cities. Events were recorded in monkish chronicles (yet in the language of the country), of which, since Nestor (who died about 1113), a long series is extant. Whilst the Mongols oppressed the Russians, the Livonians, Teutonic knights, and Swedes, attacked them on the other side. An annual tribute was paid to the Mongols, and nothing was to be undertaken which should appear dangerous to the latter; yet, even in this condition, the Russian princes carried on some successful wars. Alexander defeated the Swedes, in 1241, on the Neva, and received the surname of Newsky. (See *Alexander Newsky.*) His youngest son, Daniel, came to the throne fourteen years after Alexander's death, lived in Moscow, and, in 1296, first assumed the title of grand-prince of Moscow. The Russians struggled against the Tartars, and even defeated them, in 1360, but were obliged, nevertheless, to return to the condition of tributaries.

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[*] The Russian language uses, as is known, *g* instead of *h* (hospodar, gospodar).

[†] The ancient inhabitants of Scandinavia received different names in the different countries in which they settled. In England, they were called *Danes;* in France, *Normans;* in Russia, *Waræegians*, or *Varagians* (translated *wandering hunters*, adventurers). The Tschuds, in the Finnish dialect, called them *Ruotsi*, *Rutzi* (i. e. foreigners, adventurers); hence *Rohs*, and now *Russians*. This appellation was used, even before the time of Ruric, by the Byzantines, though not before the beginning of the ninth century. According to Nestor, the term *Russians* became general only after the Varjagi had made themselves, through Ruric, the ruling caste among the Slavi. Nestor calls Ruric and his brothers *Njemtzi* (i. e. Germans); Thunmann and Schlozer consider them to be Scandinavians (Normans); Ewers calls them, without ground, *Chazars*. Ruric and his followers probably came from Vagria, from the then known port Aldeigaborg, now Aldenburg, or Oldenburg. They were, perhaps, Frisians, or Jutes. The first place which Ruric founded near Novgorod, and fortified, was called by him *Aldeigaborg*, from which, to this day, lake Ladoga (formerly Aldoga) has its name.

II. *Middle Period.* Iwan I. (Wasiliewitsch the Great, who reigned from 1462 to 1505) succeeded, after a struggle which continued from 1477 to 1481, in freeing Russia from the Tartars. The conquests of Timour, and partitions of the Tartar territory, had weakened the power of the Mongols. In this period, the Cossacks arose. The Poles and Lithuanians had conquered the whole of Western Russia to Kiev, and subjected the vanquished people to religious persecution, as well as political oppression. On the east, the Tartars of the Crimea bore hard upon Russia. The discontented therefore retired into the fertile but uninhabited Ukraine, and adopted a military organization, under the control of atamans (hetmans). The wife of Iwan I. (Zoë, a Greek princess, through whom the double-headed eagle came into the Russian arms) did much good in Russia. Iwan made the indivisibility of the realm a fundamental law; he introduced fire-arms into Russia, and made Kasan dependent upon her. His son Wasilei had many conflicts with the Poles. The German emperor Maximilian endeavoured to make peace between them, in order to institute a sacred league of Christian princes against the Turks, and sent baron von Heberstein to the czar. Pope Clement VII. strove to win the czar over to the Roman Catholic church, and offered him the royal title; but Poland did not enter into the pope's plan. In the promotion of civilization, Iwan Wasiliewitsch II. surpassed all his predecessors. German artists and learned men went, by the way of Lubeck, to Russia; printing-offices were established; commerce was promoted by a treaty with Elizabeth of England, in 1553, as the English had just found the way by sea to Archangel. Iwan established a standing army, the Strjelzi, or Strelitzes (shooters); conquered Kasan in 1552, the kingdom of Astrachan in 1554, and strove to drive the Teutonic knights from Livonia; but Denmark, Poland and Sweden attacked him, and a conspiracy in the interior broke out. In this embarrassment, he implored the emperor Rodolph II. and pope Gregory XIII. to interfere; and the nuncio of the latter brought about the peace of Zapolia between Iwan II. and Stephen Bathory, king of Poland, in 1582, by which Livonia was ceded to Poland. Towards the end of Iwan's reign, the Cossack Yermak discovered Siberia (about 1578). Iwan died in 1584. Feodor, his successor, conquered Siberia entirely in 1587, and surrendered Esthonia to Sweden in 1595. Feodor, the last of Ruric's descendants, died in 1598; and Russia was shaken by internal convulsions and external wars, which greatly retarded her progress in civilization. The war of the Polish party with the party of the pseudo-Demetrius* was not ended until Michael Fedorowitsch ascended the throne in 1613; after which a treaty of peace was concluded at Stolbowa, with Sweden, in 1617, and at Divelina, with Poland, in 1618.

III. *Modern History.* The Russians elected Michael, a son of Philaret, metropolitan of Rostoff, and, at a later period, patriarch (Philaret's original name was Feodor Nikitowitsch Romanoff), in 1613, czar, with unlimited and hereditary power. After having overcome many obstacles, he reigned in comparative tranquillity, till 1645. Under his son Alexei, the last pseudo-Demetrius was beheaded, in 1653. In this period, also, begin the wars with the Turks (neighbours of the Russians since 1472), on account of the Ukraine, in 1671. Alexei (died in 1676), and his son, Feodor III. (died in 1682), did much for the industry, commerce, internal organization, legislation, &c. of the empire. The former established the first posts in Russia, and humbled the patriarchs; whilst the latter put an end to the claims of the nobility to the higher offices, by burning their pedigrees. He appointed his half-brother, Peter, his successor, passing over the weak Iwan. After 1689, Peter ruled alone, having put Sophia, sister to Feodor, in a convent, and having received from Iwan a surrender of his claims to the government. Russia now extended from Archangel to Azoph; but was as yet separated from the Baltic. The inhabitants of this vast territory formed one nation, united by the ties of language and religion. Peter made the Russians Europeans, as Philip had made the Macedonians Greeks. (See the article *Peter I.*) By the acquisition of the coasts of the Baltic, Russia entered into the series of European powers. At Pultawa, July 8, 1709, the supremacy of Sweden in the north was destroyed; and, in 1721, Sweden, exhausted by a struggle of twenty years, concluded the peace of Nystadt, under hard conditions. (See *Northern War.*) Peter's views respecting Persia, the Porte, and Poland, were realized by his successors.

His wife, Catharine I., reigned from 1725 to 1727, under Menschikoff's influence, only occupied with the concerns of the interior. Under Peter II., her successor, who died in 1730, the Dolgorucky, who had overthrown Menschikoff, found so much to occupy them in the domestic affairs of the country, that they did not pay much attention to the foreign relations.

When Anna, niece of Peter I., and, from 1711, widow of Frederic, duke of Courland, ascended the throne, the nobles endeavoured to limit the power of the sovereign; but their plans were frustrated, and a cabinet composed of foreigners was the consequence. Münnich and Ostermann, of Peter's school, turned their thoughts to foreign aggrandizement. Russia established her influence over Poland, by putting Augustus III. on the throne. Münnich took Azoph and Oczakow by storm; the victory of Stewutschan, in 1739, threw Choczim and Moldavia into the Russian power—advantages, however, which were lost, in consequence of the unfortunate campaign of the Austrians, and the peace of Belgrade, in 1739. Russia, nevertheless, had acquired, by these conquests, much influence among the powers of Europe; and her armies were vastly improved.

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* The genuine Demetrius, younger son of Iwan II., and brother to Feodor, is said to have been murdered by the usurper Boris; but modern inquiries have thrown much doubt on this subject. The murdered Demetrius is a saint in Russia.

Anna died in 1740, and Iwan III., two months old, was placed on the throne, under Biron's guardianship: but, December 6, 1741, the princess Elizabeth, youngest daughter of Peter the Great, ascended the throne, and imprisoned Iwan III. (grandson of the sister of Anna). Elizabeth, who was notorious for gross and open licentiousness, sent the chancellor Ostermann and field-marshal Münnich to Siberia. The German language had, till then, prevailed at court and in the chief schools; but the French now gradually gained the ascendancy. France had instigated Sweden to a war with Russia, during the Austrian war of succession, in order to prevent Russia from affording aid to Maria Theresa of Austria; but the conquest of Finland caused the peace of Abo, August 17, 1743. The act of succession of prince Adolphus Frederic of Holstein-Gottorp confirmed the influence of Russia over Sweden. In favour of this prince, his cousin Charles Peter Ulrich, of Holstein-Gottorp, resigned his claims upon the Swedish throne, and was declared by his aunt, the empress Elizabeth, in 1743, her successor in that of Russia. Lestocq was banished, and Bestucheff, taking charge of the foreign relations, changed the foreign policy of the country, so that, in 1747, Elizabeth renewed her alliance with Austria and England, and sent an army to Germany against France, by which means she contributed to bring about the peace of Aix-la-Chapelle. In 1754, Russia assisted Austria against Prussia, in the seven years' war. Elizabeth died January 5, 1762, and her successor, Peter III., the admirer and friend of Frederic the Great, immediately concluded a peace and alliance with him. But Catharine II. deprived her husband of his throne and life, July 9, 1762, and confirmed only the peace with Frederic, and not the alliance.

With the reign of this able, artful, and licentious woman begins a new era in Russian history. (For an account of her life, see *Catharine II.*) As soon as she had relieved the country from an exhausting war, she invited all kinds of colonists into it, and collected around her distinguished foreigners to assist her plans; schools, laws, commerce, industry,—every thing received a new impulse. The revenue rose from thirty millions of roubles to sixty millions; the army was increased to 450,000 men; the navy to forty-five vessels of the line. She caused, in 1764, Stanislaus Poniatowski, who had been one of her lovers, to be elected king of Poland; and foreign laws were forced upon the people; but their despair produced, on a sudden, the general confederacy at Bar, and Poland resisted Catharine for six years. She was victorious by land and sea against the Porte (1770), and would have been able to humble Poland, had not the breaking out of the plague in Moscow, the insurrection of a common Cossack, Pugatscheff, and the revolutions in Sweden, given so much employment to her forces. At length, the partition of Poland took place (August 5, 1772), and Russia received that part of Poland which lies between the Duna, the Dnieper, and Drutsch. (See *Poland.*) Besides this, the influence of Russia upon that unhappy country was confirmed by the establishment of a permanent council, the guarantee of an elective kingdom, and the *liberum veto.* July 22, 1774, she concluded peace with the Turks, by which she acquired Kinburn, Azoph, part of the Crimea, and Kabarda: all the other conquests were restored. In 1776, she divided the empire into governments. In 1780, she instituted the alliance, called the *armed neutrality*, between Russia, the German emperor, Prussia, and Portugal, against the naval power of the British. In 1778, she had taken a new lover, Potemkin, who directed the Russian policy until 1791, when he died. With him she planned the expulsion of the Turks from Europe, and the re-establishment of the Byzantine empire; but political considerations prevented the execution of this idea at the time it was projected; and when it was resumed, ten years later, it succeeded but very partially. In 1783, Russia took possession of Little Tartary; thus she held the key to the Ottoman empire. The favour of Prussia had been won by the first partition of Poland, that of Austria by the project of an exchange of Bavaria. Austria, in fact, was even connected with Russia by an alliance against Turkey, so that the idea of expelling the Turks was not a mere chimera. The war with the Porte began. The attempt of the Turks to reconquer the Crimea was frustrated; their fleet was defeated, in 1788, at the mouths of the Dnieper. Oczakow was taken by a bloody assault; but again the Austrians were unsuccessful. Joseph II. lost, at Lugos, September 20, 1788, his health and military reputation. Yet the Austrian and Russian armies were subsequently victorious; but, in 1790, Austria retired from the theatre of war, after the convention of Reichenbach; and when Gustavus III. of Sweden had invaded Finland, Catharine became inclined to peace. The Turks did not take advantage of the propitious moment. The peace of Werela, in 1790, put an end to the war with Sweden, after several naval battles, advantageous to the latter. Austria concluded peace with Turkey at Sistova, in 1791; Russia at Jassy, January 9, 1792, by which only Oczacow, with its territory, was taken from the Porte, and the Dniester became the frontier of Russia towards Moldavia and Bessarabia. During this war, Prussia had prevented Poland from joining Russia against the Turks; and the Prussian party in Poland, with Ignatius Potocki at their head, gave a new constitution to the country, May 3, 1791. Felix Potocki, at the head of the Russian party, formed, in 1792, the confederation of Targowitz, for the support of the old constitution. But Prussia, at war with France, feared a war with Russia, and, breaking her word given to the Poles, marched an army into Poland. The second partition of this ill-fated country took place at Grodno, August 17, 1793 (see *Poland*), by which Russia acquired 13,609 square miles (the greater part of Lithuania, with Wilna, of Volhynia, and the rest of Podolia). The wreck of the republic was annexed to Russia by the act of union. In 1794, Kosciusko (q. v.) and Madalinski rose for the deliverance of their country. In the same year, the republic was entirely dissolved. In this last partition, Austria also took a share. October 24, 1795, the boundary treaty between Russia and Prussia was concluded, and finally settled January 26, 1797. Courland was taken by Russia as a Polish fief.

Catharine died November 17, 1796, having added to the empire of Russia 210,000 square miles of fertile land. She had not taken an active part against the French revolution, though she had concluded an alliance with Britain and Austria; but her only son, Paul I., united with Naples, Turkey, Austria, and Britain, whilst Bonaparte was in Egypt. Suwaroff, commander of the united Austrians and Russians in Italy, was victorious at Cassano, April 27, 1799, on the Trebia, July 17, and at Novi, August 15; but political considerations obliged him to march back, and Masséna having been victorious over Korsakoff in Switzerland, he was compelled to retire to Upper Germany. The alliance between Russia and Austria was broken, as was also that of Russia with Britain. Paul was embittered against Britain for occupying Malta; yet the naval war was continued jointly. The Russians and Turks occupied Corfu. In 1800, the republic of the Seven Islands was established under the guarantee of the Porte and Russia, and was occupied by troops of the latter until 1807—a circumstance which very much increased the Russian influence in the Mediterranean. Paul renewed the plan of an armed neutrality in the north, in consequence of which the battle of Copenhagen took place, April 2, 1801; but the emperor had died nine days previous, and his successor declared himself for peace and for Britain.

Under Alexander's mediation, the peace of Luneville was concluded. He then devoted himself to the internal improvement, appointed a committee, under prince Lapuchin, for the revision of the laws, constituted the senate as a kind of intermediate body between the monarch and the people, and gradually mitigated the rigour of bondage, especially in the crown-villages and the German provinces. The police, especially that of the health department, was greatly improved; about 2000 physicians were paid by government; vaccination was introduced. Agriculture was much improved under him, and some nomadic tribes, as well as the Nogay Tartars, devoted themselves to husbandry. Science was fostered. Krusenstern circumnavigated the world. In Charkow and Kasan, universities and schools were established. But Alexander soon became engaged in the desolating conflicts of Europe with France; at first in 1805, in favour of Austria, until the unfortunate battle of Austerlitz; in the next year in connexion with Prussia. Again unsuccessful, Russia concluded peace with France at Tilsit, in 1807; received a part of Poland (Bialystock), and ceded Jever; evacuated Cattaro and Corfu; broke off all connexion with Britain; and declared war against Sweden, the only ally of Britain. In the same year (1809), the peace of Fredricshamm made Finland and east Bothnia, with Tornea and the Aland islands, a Russian province. In the war between Austria and France, in 1809, Russia took but little share, but continued with vigour the war with the Porte and with Persia. By the peace of Vienna she received a part of East Galicia, which, however, was restored at the congress of Vienna. When, at length, Russia objected to the extension of France to the river Trave, on account of the emperor's connexion with the duke of Oldenburg, and could not, in her commercial system, accede to the views of Napoleon, the war of 1812 began, which, in the sequel, involved all the powers of Europe, and caused the overthrow of Napoleon, in 1815. (See *Russian-German War.*) Russia, it is true, had suffered immensely by this devastating war; but it emerged as a power of pre-eminent importance, and strengthened by the addition of Poland to its immense territory. This influence seemed, during the reign of Alexander, continually to increase by means of the holy alliance, founded and supported by him. At Vienna, in 1815, at Aix-la-Chapelle, in 1818, at Troppau, Laybach, Verona (see *Congress*,) this influence was manifested, and the French cabinet was for a considerable time divided into a British and a Russian party. During the struggle with Napoleon, Russia discontinued its hostilities with Persia and the Porte. The peace of Bucharest, May 28, 1812, with the latter, gave her Moldavia as far as the Pruth, Bessarabia, and the chief mouths of the Danube: the peace of Tiflis in 1813, with the former, gained her all the territory west of the Caspian sea, between the Kur and the Araxes, Georgia having been united before with Russia, in 1801; and, on the east coast, as far as the gulf of Balkan, with the exclusive navigation of the Caspian sea. Particularly since the congress of Aix-la-Chapelle, Russia may be considered as having found that her influence over Europe would be best promoted by the continuance of peace, which would enable her to develope those resources which make a country formidable in war. Alexander laboured with great sagacity to develope the military power as well as the productive capacity of his empire, and at the same time interfered in the affairs of Italy and Spain, and exerted a great control over France and Germany, the less supportable as it was founded on the predominance of force over intelligence. He reorganized almost the whole interior of the empire. (See *Alexander I.*)

After the death of this emperor, December 1, 1825, his brother Nicholas ascended the throne, Constantine Cæsarowitsch having renounced his right. A conspiracy, mentioned already in the article *Alexander*, broke out December 26, 1825, when the regiments of the guard, who had taken the oath to Constantine immediately after Alexander's death, were to take the oath to Nicholas. Two companies refused, and a tumult ensued, which continued for one day, and was suppressed at last by the mingled firmness and moderation of Nicholas. The investigation of this matter brought to light a conspiracy which had existed already for years, founded, as it would appear, partly on crude political ideas, partly on the offended pride of the old Russian nobility. The committee of investigation published a report May 30 (June 11,) 1826. The most guilty, some high officers, were hanged, others sent to Siberia, and others pardoned. The foreign relations of Russia with China have remained unaltered since the treaty of eternal amity between the two countries, concluded in 1727. This treaty provides for the residence of a Russian mission (a mission of young men who study Chinese) in Pekin, by means of which the Russians always maintain a communication with the capital of China. According to the peace of Gulistan, October 12, 1813, ratified at Tiflis, September 15, 1814, Russia received, besides the territory along the Caspian and the exclusive navigation of that sea with ships of war, the right of trade in Persia, in consideration of paying a duty of five per cent., and engaged to support that prince, whom the reigning sovereign should designate for his successor, and not to suffer any interference of a foreign power in the internal affairs of Persia. General Jermoloff at the same time made war upon the mountaineers of the Caucasus, who make a business of robbery. Most of them had submitted in 1823, and, in the same year, seven khans of the Kirguises and Calmucks had passed from the Chinese sovereignty voluntarily under the Russian. About this time the Persian shah had appointed his son Abbas-Mirza his successor, when the settling of the new boundaries caused disputes, which were not settled at the time of Alexander's death. Nicholas sent prince Menschikoff to the court of Teheran, to propose an exchange of the province in question; but the warlike Abbas-Mirza thought the moment propitious for attacking Russia, and marched, August, 1826, over the frontier, called the Mussulman subjects of Russia to arms, and advanced as far as Elizabethpol; but, September 14, the Persian army was defeated, and September 25, general Paskewitsch overcame the Persian crown-prince at Elizabethpol, and freed the Russian territory. September 28, Russia declared war against Persia. Paskewitsch, being appointed commander-in-chief, passed the Araxes, took, April 27, the celebrated Armenian monastery, Etschmiasin, October 3, the fortress Sardor Adad, and October 19, the fortress of Erivan, the bulwark of Persia against Russia. The Russians now entered ancient Media without opposition, and forced the Shah to sue for peace. November 5, 1827, the preliminaries were signed, according to which Persia ceded the khanships of Erivan, on both sides of the Araxes, and the khanship of Nakitschevan, paid the expenses of the war, and the losses caused by the invasion. In the article *Ottoman Empire* we have touched upon the relations between the Porte and Russia, during the years 1826 and 1827. (For the part of Russia, in the mediation between Turkey and the Greek insurgents, and in the battle at Navarino, see the end of our article *Greece, Revolution of Modern.*)

The patience of Russia was now exhausted by the conduct of the Porte. February 27, 1828, the Russian minister Nesselrode declared to France and Great Britain, that his sovereign must have satisfaction for the violation of the treaty of Ackermann, and for the hatti sheriff of December 20, 1827, which the Porte had addressed to all the pachas, and which contained many offensive charges against Russia. March 14, the emperor Nicholas issued a declaration of war against the Porte. The Russian forces passed the Pruth, May 7, to the number of 115,000 men, including persons of all descriptions, attached to the camp. Count Diebitsch, to whom the plan of the campaign was ascribed, was chief of the emperor's staff, which, on May 19, arrived before Brailow. Count Wittgenstein was commander-in-chief. Jassy was occupied May 7, Bucharest May 12, and Brailow invested on the 11th. June 11, the third division of the Russian army, in which was the emperor's head-quarters, crossed the Danube. June 15, an attempt was made to carry Brailow by storm, but without success; it capitulated, however, on the 19th. The Russians had now the lower Danube in their power, which secured the connexion of the army with Russia. The divisions advanced singly. After the battles of the 7th and 20th of July, the Turks retired into the fortified mountain position of Choumla, which was the centre of their operations. The Turkish army, under Hussein Pacha, here consisted of more than 40,000 men. Varna, fortified by nature and art, and defended by the favourite of the sultan, the capudan pacha, and the warlike Jussuf Pacha of Seres, formed the right wing of the Turkish position. Around these gates of Constantinople (as they are called), Varna and Choumla, the hottest conflict ensued. The principal army, 45,000 men strong, under field-marshal Wittgenstein, with whom the emperor had his head-quarters, approached Choumla, whilst lieutenant-general Roth besieged Silistria, and lieutenant-general count Suchtelen watched Varna. The grand vizier would not give battle at Choumla, but confined himself to the defence of the place. The Russians took possession at last of the key of the Balkan, Prawodi, from which a strong division of the army might have pressed forward to Aidos; but they did not dare to leave Choumla and Varna in their rear, and some battalions, who had proceeded too far, suffered loss near Eski Stambol, and an intrenchment was taken by the Turks. In proportion to the difficulty of carrying on the siege, in a vast and almost uninhabitable country like Bulgaria, under the fatal influence of the climate, were the efforts of the Russians to get possession at least of Varna. After this place had been invested on the land side by prince Menschikoff, and on the sea side by the fleet from the Black sea, returning from Anapa, under admiral Greig breaches were made. Omer Vriones advanced to its relief, but was driven back by prince Eugene of Würtemberg; a body of troops forced their way into the bastion, October 7, and entered the city, which they soon left again. Terrified by this, the enemy gave up all further resistance, and Jussuf Pacha came himself to the Russian camp to negotiate. The capudan pacha retired into the citadel. The Russians took possession of all the bastions of the fortress, October 11, after two months' siege, without any conditions on the part of the inhabitants. The capudan pacha had liberty to retire with 300 men. Jussuf Pacha of Seres went over to the Russians with several Turkish troops, and repaired to Odessa. After this conquest, the Russians drew back from Choumla, October 15. The siege of Silistria did not take place till the last of September. Winter came on unusually early, and diseases became prevalent; a scarcity of food and provender existed, so that the siege was raised on November 10th. The campaign in Asia was successful; prince Menschikoff, on the 22d of June, had taken the fortress of Anapa, on the Black sea, which was dangerous for the provinces of Russia beyond the Caucasus, in consequence of which the predatory population of the neighbouring mountains submitted to the Russians. The Russian army under count Paskewitsch forced their way from Caucasus and Ararat into Asiatic Turkey, and took by storm, July 5, the strong fortress of Kars, the central point of Turkish Armenia, together with the enemies' camp. Whilst the Russian fleet on the Black sea destroyed a Turkish flotilla, August 8, and the batteries of Iniada, on the coast, near Constantinople, and supported the attack on Varna, Paskewitsch took the fortresses of Achalkalaki, Gertwiss, and, July 26, Poti, which being situated at the mouth of the Phasis, secured the possession of Mingrelia and Imiretia. The Turks, indeed, wished to press forward from Arsrum, (Erzerum), and for this purpose placed an army of 30,000 men near Akhalzich. But Paskewitsch crossed an almost impassable mountain, and beat the enemy at Kura, and, on the 21st, the principal body of his forces, after which he took Akhalzich by storm (on the 25th). The citadel capitulated. Several strong fortresses fell into the Russian power up to the 21st of September, so that the whole pachalic of Bajasid, as far as the banks of the Euphrates, was conquered. The campaign in Europe corresponded less to the general expectation. The numbers of the army were not so complete as had been calculated, and the supplies were deficient. The loss of the horses could not be immediately repaired. The prevalent diseases had greatly weakened the army. At last, a severe winter came on, and put an end to the campaign in both countries. Its results, however, were important. In Europe and Asia, Russia had taken possession of two Turkish principalities, and three pachalics, fourteen fortresses and three castles, besides commanding a long line of country, and four passages over the Danube. The Russian emperor had repeated, during and after the campaign, as well as before it, to the British ambassador-extraordinary, lord Heytesbury, his inclination for peace with the Porte, on the terms of indemnification for the expenses of the war, and security against future injuries and violations of treaties; but the Porte had rejected all mediation on the basis of the London treaty, and refused to send envoys to negotiate with the ambassadors, of the three powers, and the commissioners of the Greeks. On the contrary, Mahmoud had announced a new campaign, with the words, "Honour and independence are worth more than life." Hitherto the negotiations had been carried on in Constantinople, with the reis effendi, by the minister of the Netherlands. He had delivered to the reis effendi the manifesto of France, Great Britain and Russia, of August 11, 1828, which made known to the Porte the motive and object of the French expedition against the Morea. The Prussian ambassador, Canitz, likewise advised the Porte to yield, but, till January, 1829, without success. The sultan had even banished to Asia many of the friends of peace among the ulemas, on account of their sentiments. Still he showed, on several occasions, an unexpected regard for the laws of nations. He did not close the Bosphorus against the trade of neutrals with Russia until the 13th of September; the Russian prisoners were well treated; the Russians settled in Constantinople were protected, and the irritated Turks were kept in unusual restraint. On the other hand, Jussuf Pacha of Seres, for surrendering Varna, which had till then resisted all attacks, was banished, and his estates confiscated. The grand vizier, Mehmed Selim, was deposed for his delay in relieving that fortress, and banished to Gallipoli. At length a strong body of cavalry from Asia, under the command of the brave Tshapan Oglu, joined the forces, to open the campaign of 1829.

February 21, 1829, general Diebitsch* was appointed commander-in chief of the Russian forces; but even previous to that event, and in the midst of winter, the Russian forces had not been reduced entirely to inaction. The fortresses of Kale and Tourno, on the Danube, were taken at the end of January, with eighty-seven pieces of cannon, while the thermometer of Fahrenheit was at zero. February 18, a flotilla of thirty Turkish vessels, frozen up near Nicopoli, was destroyed. February 25, the fortress of Sizeboli, beyond the gulf of Bourgas, east of the Balkan, was taken by a Russian fleet. The garrison, consisting of about 16,000 Albanians, retreated, and joined the main body under Hussein Pacha. But it was in Asiatic Turkey that the serious operations of the campaign commenced. On the night of March 3d, a Turkish force of more than 20,000 men made an attack on Akhalzich. General Paskewitsch immediately sent a reinforcement to the relief of the place, and on the 16th the besieging force retreated. June 14th, a body of Turks, who had been drawn down, by the movements of the Russians, from the mountains of Adjar, were attacked in their intrenched camp by generals Mouravieff and Bourtsoff. The camp was carried by assault, and large stores of provisions and ammunitions, nearly 400 prisoners, &c., were taken. An army of 50,000 men had been collected by the seraskier of Erzerum, and divided into two corps, one commanded by the pacha of three tails, Hagki, an officer of high renown in Asiatic Turkey, who, with 20,000 men, was stationed at the passes of the mountains of Saganlon; the other, of 30,000 men, under the seraskier of Erzerum himself. These two corps, by the manœuvres of general Paskewitsch, were separated from each other, and successively totally defeated, at the beginning of July. July 3, Paskewitsch took possession of Erzerum, the centre of the Turkish power in Asia. The seraskier, commander-in-chief of the whole Turkish army, and governor of all Asiatic Turkey, was taken prisoner, together with four principal pachas, and 150 pieces of cannon. The sharpest contest of the Asiatic campaign was occasioned by the attempt of the pacha of Van to rescue from the Russians the fortress of Bajasid. The attack was made with 7000 infantry and 5000 cavalry, aided by the fire from a battery, on a range of rocks, which swept the Russian troops on the flank and rear, and the fire of musquetry from the inhabitants of the Tartar quarter of the place. After thirty-two hours of incessant fighting, the Turks retreated. The career of Paskewitsch in this campaign had been one of continual success; and such had been his preceding campaign in Persia. In the European provinces, the campaign commenced by the renewal of the siege of Silistria, under the immediate direction of Diebitsch. May 17, a detachment of the Russian army, posted near the village of Eski Arnaoutlar, was attacked by the Turkish army commanded by the grand vizier from Choumla, at three in the morning. The battle lasted till eight in the evening, when the Turks retired. June 11, the battle of Koulevtcha, or Prawodi, took place between the army of Diebitsch and that of the grand vizier. It was contested with obstinacy, and the victory displayed rather the superiority of European tactics than of courage. June 30, Silistria surrendered, and the garrison of 10,000 men became prisoners of war; 220 pieces of cannon, eighty standards, and the whole Turkish flotilla, fell into the hands of the Russians. Immediately after the surrender of Silistria, Diebitsch commenced his preparations for the passage of the river Kamtchik and the Balkan mountain. He left his camp before Choumla July 17. July 22, the Russians had made such progress, that the general head-quarters of the army were removed to Erketch, on the summit of the Balkan, after considerable opposition from the Turks, at the passage of the Kamtchik. Mezembri was occupied on the 23d, and fifteen pieces of cannon, and large quantities of warlike stores, were taken. Arriving on the shores of the Euxine, the progress of the army was aided by the co-operation of the fleet under admiral Greig, consisting of three ships of the line, three frigates, and some smaller vessels. After the successive occupation of sundry villages from day to day, the last resistance on the part of the Turks before the Russians reached Adrianople, was made at Slivno, or Selimno, said to be next in importance to Adrianople, among the cities of the Ottoman empire. The Turks abandoned the city, August 12, after a very feeble resistance. From this time the Russians encountered hardly any difficulties, before reaching Adrianople, except such as arose from the excessive heat of the weather, the rocky ground, and bad state of the roads. On the 19th, the Russians approached Adrianople, which was occupied the next day without opposition. Negotiations now commenced, and, September 14, a treaty of peace was signed, the principal points of which were the cessation of hostilities; the restoration by Russia of the principalities of Walachia and Moldavia, and of all the towns occupied by the Russians in Bulgaria and Rumelia; the settlement of the boundaries between the two powers in Europe and Asia; the provisions for the religious liberty, independent administration and free trade of the people of Moldavia and Walachia; freedom of commerce to Russian subjects throughout the Ottoman empire, as secured by former treaties; free commerce and navigation of the Black sea to all nations at peace with the Porte; the stipulation of the Porte to pay 1,500,000 ducats of Holland to Russia within eighteen months, as an indemnification for losses of Russian subjects, and a further sum, such as should be agreed on, as an indemnity for the expenses of the war; the accession of the Porte to the arrangements of Russia, Great Britain, and France, respecting Greece. By a subsequent separate act, the indemnities mentioned as stipulated were agreed to be paid by instalments, the first in four increasing payments at short intervals; the second in ten annual instalments. On the first payment of the portion of the smaller sum, the Russian forces were to retire from Adrianople; on the second, to recede beyond the Balkan; on the third, to repass the Danube; and on the fourth payment, to evacuate the Turkish territory. Thus the emperor Nicholas, according to the pledge which he had given to his allies at the commencement of the war, stopped short in the career of conquest, when he had obtained the objects for which the war was professedly undertaken.

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* Diebitsch was the son of a Silesian officer in the Prussian, and afterwards in the Russian service. In 1813, he was lieutenant-general and quarter-master-general, and, subsequently, adjutant-general to Alexander. In the battle of Austerlitz he was wounded in the hand: at Dresden he received a severe contusion, and had two horses shot under him; and he distinguished himself in the actions of Eylau and Friedland.

The beginning of the insurrection in Poland has been given in the article *Poland*. The following is a short account of the struggle which ensued. When the diet of Poland met, December 18, 1830, at Warsaw, general Chlopicki resigned the dictatorship; on the 20th, indeed, he was reinstated in the office, but he finally resigned, January 19, 1831. Whilst Poland was preparing for the unequal conflict with great enthusiasm, at least among the better educated classes, the Jews not excepted, the emperor Nicholas, December 17 (24), 1830, issued a proclamation to the Poles, calling upon them to submit to their legitimate government. January 21, prince Radzivil was elected commander-in-chief of the Polish army, and on the 24th, the termination of the Russian dynasty in Poland was declared. Marshal Diebitsch, who had so successfully conducted the war with the Turks, entered Poland at the head of a large army. He advanced as far as Warsaw, and was victorious over the Poles near the walls of their capital, February 25, 1831 (the loss of the Poles is stated to have been 5500, that of their enemies 4500); but when prince Radzivil resigned the command on the 28th, and Skrzynecki, then only a colonel, was appointed in his place, the Polish cause gained strength. This brave officer, though finally unsuccessful, like the heroic Kosciusko, proved that he deserved a better fate. March 31, he was victorious over the Russians in a night attack. He advanced cautiously, and, favoured by the darkness of the night, reached their cantonments without being perceived. The advanced guard of general Geismar, consisting of 8000 or 10,000 men, was first attacked, and almost wholly destroyed; the Poles took 4000 prisoners and 1600 pieces of cannon. Immediately afterwards, he attacked general Rosen, who was posted with 20,000 men at Dembe Wielski, and obliged him to retreat with the loss of 2000 prisoners and nine pieces of cannon. Another important victory was afterwards gained near Zelcchow, where 12,000 Russians were killed, wounded or taken, with twelve pieces of cannon. During this action, the Lithuanians and Volhynians, who served in the Russian army, turned their arms against the Russians, and materially contributed to the success of the Poles. The peasants in various quarters of Poland now took an active part in the war, and hastened, with whatever weapons they could obtain, to the army. Insurrections broke out in Lithuania, Volhynia, Kowno, the Ukraine, Wilna, and even in ancient Poland, as far as Smolensk. On the other hand, general Dwernicki, who had been sent to make a demonstration in the rear of the Russians, and who had been victorious over them, was at last compelled to pass into the Austrian dominions, where he surrendered to the authorities of that country, April 27, with 5000 Poles. He is said to have been treated humanely. Skrzynecki, after having had several unsuccessful encounters with the Russians, and having avoided a decisive engagement with an enemy superior in strength, at last fought the battle of Ostrolenka, May 26. The Russian army is said to have amounted to 55,000, and the Polish to 20,000. The Russians were victorious. The same day the Polish general Chlapovski was victorious over the Russians, under Sacken, at Mariampol. The ardour of the people still continued, and hopes were entertained in every country that the manly resistance of the Poles would induce the powerful cabinets to interfere; but, unfortunately, Prussia and Austria, being themselves in possession of a part of the spoils of Poland, did all in their power to prevent interference, whilst Britain and France were too much occupied at home to render essential aid. June 19, count Diebitsch suddenly died of the cholera morbus, which the Russian army had carried to Poland, at Klechewo, having been superseded, on the 16th of the same month, by general Paskewitsch, whose campaign in Asia has been already mentioned. The military operations were now prosecuted with new vigour, and the emperor, who, in a manifesto addressed to the Russians, had called them the legitimate masters of the Poles, was ready to make every sacrifice to regain the Polish throne. The Poles were successful, July 14, under general Chrzanski, five miles from Warsaw, against the Russians; but, owing to causes which have not yet been satisfactorily explained, a change of government took place in Warsaw, and general Skrzynecki was superseded by Dembinski as commander-in-chief. The behaviour of the former seems to have been throughout exemplary, and such was his deportment on his discharge from the supreme command. The skill and valour of generals Roziski and Czartoryski were no longer of any avail. A conspiracy of the Russian prisoners in Warsaw was discovered and punished. Krukowiecki was appointed Polish dictator. Paskewitsch made preparations for the taking of the city, in which he succeeded September 7, at six o'clock, when the capital surrendered by capitulation, after a most sanguinary conflict of two days' duration, during which the Polish soldiers behaved heroically, whilst it is not yet sufficiently explained, whether the authorities did their duty. The Polish army, followed by the diet and the members of government, retired through Praga, on the night of the 7th, and, early on the 8th, the Russians entered Warsaw.* The Polish army remained for a short time at Modlin; but the country was soon obliged to submit entirely to the Russian forces, with which the grand-prince Michael, brother to the emperor Nicholas, had entered Warsaw. He organized a provisory government, of which, at first, he himself, and soon after, general Paskewitsch, was the head. This general was made prince Warszawski (the Warsovian) as a reward for his services. A sort of amnesty was proclaimed; but the corps of generals Romarino, Kamniski and Rubinski were prohibited from returning to Poland, because they continued in arms after the capitulation of Warsaw, in contempt of the orders of the Polish commander-in-chief. Many distinguished Poles were sent into the interior of Russia or to Siberia; many of all ranks emigrated, chiefly to France. They were every where, in Germany and France, enthusiastically received by the people, and in the latter country were also aided by the government. General Skrzynecki is said to live in Austria, and to be honourably treated. Though the kingdom of Poland, it seems, is not to be entirely incorporated with Russia, like those portions which were torn from it by the partitions, yet the intention of the Russian government appears to be to deprive it entirely of a general diet, and to establish provincial chambers. Thus that gigantic power, which, even under an enlightened monarch, is, from the very form of its government, hostile to the constitutional principle, developing itself so rapidly in the west of Europe, and which unites the force both of barbarism and civilization, has come close upon western Europe and exercises, at least for the present, a powerful influence upon it; as is evinced—if an example among so many were necessary—in the Belgic question. However distant the time may be, Europe will not be safe until Poland is re-established; without which, Austria and Prussia, particularly the latter, must remain bound to Russia.

Russian-German War, 1812—1815. Between France and Russia a coldness had arisen since 1809, although the meeting of the monarchs of the two countries at Erfurt, in 1808 (especially when the geographical situation of their states was considered,) seemed to give assurance of a lasting peace. The slight share which the tardy army of Russian auxiliaries took in the war against Austria, showed that its commander had received injunctions to be circumspect in his proceedings. At the same time, all the Russian harbours were opened to the British, provided they displayed the American flag, while French goods were strictly prohibited. This induced Napoleon, in order to enforce his commercial prohibitions against Britain, to make himself master of the northern sea-board of Germany, and incorporate the country of the duke of Oldenburgh, a near relation of Alexander, with France. Against this proceeding, Russia made an energetic protest; and, as early as 1811, five Russian divisions assumed a position opposite Warsaw. On the other hand, Napoleon caused the fortresses on the Vistula and Oder to be declared in a state of siege, sent thither large masses of troops, and occupied Swedish Pomerania, because Charles XIII. of Sweden declined a closer connexion with France. (The causes of the war between France and Russia are further treated of in the article *Bonaparte*.) The Russians adopted the plan of offensive operations; and it had been resolved to treat the approach of the French to the Oder as a declaration of war, to let the Russian army enter Prussia, ascertain the sentiments of this state, and commence hostilities. But political considerations, especially the situation of Prussia, urged the abandonment of this plan. On the French side, the visit of so many princes and kings, and even of the Austrian emperor, to Dresden, gave intimations of some great project, although Napoleon's departure from Paris, according to the *Moniteur*, had no object but a review of the army of the Vistula. Perhaps he might still hope to avert the gigantic struggle, without departing from his purposes; at least for this object the count de Narbonne proceeded to the camp of Alexander, at Wilna, and offers of peaceable arrangements were made. For the contest in the Peninsula, which daily became more obstinate, and consumed a large amount of men and money, might well appear to him an obstacle in the way of a struggle with Russia; but he calculated that his army, amounting nearly to one million, all of which he had rendered perfectably disposable by the institution of a new national guard of 80,000 men, would be sufficient for the conflict in both quarters; and he also relied upon a great mass of auxiliary forces, chiefly promised by the confederation of the Rhine (100,000 men,) and, finally, on the alliance with Prussia and Austria, which covered him on both flanks, secured his retreat, and both together furnished 60,000 men. When, therefore, Napoleon's ambassador, the object of his mission unattained, returned to Dresden, half a million soldiers (French, Germans, Italians, Poles, Swiss, Spaniards, and Portuguese,) with more than 1200 cannon, were put in motion, about the end of July, to attack the Russians on the other side of the Niemen and the Vistula. The Russians, in three divisions, occupied a line including Kiev and Smolensk to Riga. The first western army (127,000 men,) in Lithuania and Courland, was commanded by Barclay de Tolly, who had till then been minister of war, under whom was Wittgenstein; the other western army (48,000 strong,) between Smolensk and Kiev, was commanded by prince Bagration. General Doctoroff led a third body of forces, which served to keep up the communication between the other two. Goods and records had long before been generally conveyed into the interior. Rigi, Smolensk, &c., were fortified, and an entrenched camp established on the Dwina. Napoleon, already near the Russian frontier, made another diplomatic attempt, and sent count Lauriston, who had formerly been ambassador at Petersburgh, to the emperor Alexander; but their views were too much at variance, and Napoleon said, in his usual tone, "The conquered assume the style of the conqueror; fate overcomes them; let their destiny be fulfilled." June 24, his main forces passed the Niemen, while the rest crossed the Vistula farther down. As the passage took place near the influx of the Wilna,[*] and this river, which flowed on their left flank, was also crossed, the Russians were surrounded as far as the Dwina, entirely separated from the second western army, and compelled either to risk a decisive battle with divided forces, or to make a speedy retreat. They chose the latter, and sacrificed their great magazines, which were to have given subsistence to their right wing. Wilna, which had been Alexander's head-quarters, now became the head-quarters of Napoleon, who here organized (an important secondary object of this war) the restoration of Poland. Napoleon made a considerable stay in Wilna, partly for that purpose, partly for the sake of obtaining information of the operations of the right wing under Poniatowski, Schwartzenberg, and Regnier, over whom the king of Westphalia was commander-in-chief. He had received orders to keep the second western army still separate from the first, from which it had been divided by the march to Wilna, and to prevent any junction farther in the rear. These orders marshal Davoust, who joined on the left the flank of the king of Westphalia, executed so fully, that the corps of general Doctoroff was separated from the forces of Bagration, as well as from the western army of Barclay de Tolly, and almost surrounded, when a rain of thirty-six hours made the roads impassable, and the sudden change to cold from intolerable heat, killed, by thousands, the horses of the French, exhausted by wants of all kinds, so that Doctoroff escaped with moderate loss. The caution, boldness and courage of prince Bagration, with the want of military penetration on the part of the king of Westphalia, likewise frustrated the plans against him. He even succeeded in surprising, on his retreat, the Poles in Romanoff, and destroying a corps of 6000 men, and in stationing in Volhynia general Tormassoff, who not only perpetually confronted the extreme right wing of the French, but, by a bold attack on its flank, took prisoners a whole brigade of Saxons, in Kobryn, July 27. At Mohilew, he finally succeeded in throwing himself, with all his forces, on marshal Davoust, who defended himself with ability, but would not have escaped without the greatest loss, had not Bragration been every minute in fear of an attack from the king of Westphalia on his flank. When the news of these events had reached Wilna, Napoleon hastened to his troops, which already stood on the Dwina, where they were watching the Russians in their large entrenched camp, and had suffered considerable loss from their sallies. A bridge of boats gave the Russians the advantage of stationing their main forces on which ever bank of the Dwina they pleased. The camp was extremely strong, both by nature and art, since the eminences of the right bank commanded the left. Napoleon, however, ordered a detachment to go round the camp by the road to Poloczk; and as the previous consequences of his judicious division of the Russian line had not yet been repaired, that is, the two Russian western armies had not yet formed a junction, the Russians had no alternative but to let half their forces be destroyed, or to leave their camp and hasten to the Dnieper, where Bragation hoped to join them. Prince Wittgenstein alone maintained his situation, in order to cover the road to Petersburg, and to prevent the investing of Riga. The main army of the French, with the exception of three corps under Reggio, Macdonald, and St Cyr, which blockaded Riga, and endeavoured to take possession of the road to Petersburg (which gave rise to a number of bloody indecisive battles), now went, part across the Dwina, part along the river as far as the heights of Wolgonsk, in pursuit of the Russian army, whose rear-guard frequently fought considerable battles with the pursuers, and, from the 25th to the 27th July, contested every foot of ground at and behind Ostrowno. But marshal Davoust, pressing forward between the armies of Bagration and Barclay de Tolly, and thus keeping them apart, finally compelled them to quit the field and retire to Smolensk. Heat, and wants of all kinds, had meanwhile operated so detrimentally on the French army, that it was obliged to halt at this point for ten days, during which the two Russian armies finally formed a junction under the walls of Smolensk. They immediately began to act on the offensive.[*] With 12,000 cavalry they attacked general Sebastiani (August 8), and drove him back, with loss, a mile and a half. On the 17th, the main body put itself in motion to encounter the French army, which had advanced, on the 10th, to compel, if possible, a general battle. When Napoleon saw his attempts to surround the right wing of the Russians defeated, he ordered his right wing, under Poniatowski, to hasten by way of Ortza, by rapid marches, to cut off the Russians from Moscow. On the other hand, Bagration hastened to defend this road, and Barclay de Tolly sought to retard the enemy as much as possible. Smolensk, an old place, formerly strongly fortified, and the whole position on the Dnieper, greatly favoured his plan; and not till the midnight of the 17th, after a loss of many thousands, did the French succeed in taking this bulwark, reduced, for the most part, to a ruin. The French army was now in possession of the road to Moscow, and formed a triangle, with the left angle before Riga, with the right on the Bug, and the foremost at Smolensk, on the Dnieper. On the left and in the rear it was tolerably based, but very badly on the right flank, where the division of Tormassoff was continually making attacks. August 19, Napoleon left Smolensk, in pursuit of the Russians, whose rear encountered at Volontina, the French van under marshal Ney. The duke of Abrantes, who had superseded the king of Westphalia, had already come up in the rear of this body, when part of the Russian main army hastened to its succour: and by this means succeeded in leaving, though with great loss, the narrow defile, thirty miles in length. The Russian army retired in haste, burning all the towns through which it passed. With equal haste the troops of Napoleon followed, suffering more and more from want and the climate. Meanwhile, Barclay de Tolly had to resign the chief command to Kutusoff, who had reaped new laurels in the Turkish war just ended. Reinforced by militia and reserves, he resolved to await the enemy seventy miles from Moscow, in a strong position which was entrenched as well as time permitted. September 5, the French encamped opposite him, and, on the evening of the same day, one of the outworks of the Russian camp was taken, after the most dreadful slaughter; and at sunset of the 7th began the most bloody battle of this war, in which the one party fought to put an end to all their privations and sufferings, and the other to defend their country and preserve its capital. (See *Moskwa, Battle of the.*) The Russians lost 25,000 men; the French themselves estimated their own loss at 10,000; the number of wounded cannot be ascertained. Although the Russians were broken in their centre by the perseverance of Ney and the viceroy, on the right and left they remained masters of the field of battle; and without any great loss of artillery, and still less of prisoners, they were able to retire to Moscow, whither Napoleon's army, after two days' repose, followed in two divisions, of which the first was designed to attack the Russians in the flank. Kutusoff did not dare to risk a battle before the gates of Moscow. He marched through, and abandoned it to the flames and the French, who, Sept. 14, entered the desolate city. Moscow (q.v.) was devoted to destruction, and all the hopes built on the possession of it disappointed. Kutusoff, by a lateral march to the south, stationed himself at Kaluga, and threatened every minute to interrupt the communication of the French with their base on the Vistula. His Cossacks pressed forward to Smolensk. Werega, situated south of Moscow, constituting, as it were, a post for the protection of the French, was surprised by him, September 29. Nothing could save the French army but a speedy retreat or peace. Of the latter Napoleon entertained the more hope, as he was too proud for the former. Every day heightened the sufferings of his army, the provisions having been wasted, and foraging becoming continually more dangerous, from the conflux of Russian peasants and Cossacks. After Kutusoff had been reinforced from all quarters, by Cossacks and by militia, the summoning of which Alexander had himself superintended in summer, and the French army had been diminished in equal proportion (their loss in Moscow, by famine, assassination, the assaults of marauders, &c., was rated at 40,000 men), he suddenly threw aside the mask of pacific negociations, and (October 8) caused a strong body, under general Bennigsen, to surprise, at Tarutino, the unexpecting French, commanded by Murat and Sebastiani, and drove them back with great loss. From necessity, Napoleon now did what he should have done four weeks before: October 19, he evacuated Moscow. By his original direction towards Kaluga, he gained, indeed, a march of Kutusoff; but, after the engagement at Malo-Yaroslawetz (October 24), after which the Russians drew back, Napoleon was either deceived respecting this circumstance, or not sufficiently informed; and his army confined to the high road to Smolensk, also drew back, which was the principal cause of its destruction. For, every moment the want of cavalry became more perceptible, while the Russians, with theirs, could multiply attack on attack. The French columns consequently, had to march continually in denser order: in addition to this, the country was a desert, and want of all kinds had already dissolved the bonds of obedience, while the severity of the winter now covered the roads with ice and snow, destroying men and horses by thousands; and the Russians attacked in continually increasing numbers. After a thousand sacrifices, Smolensk was reached (November 12). But in vain had the remnants of the army hoped to find there repose, nourishment, clothing. The peace with the Porte had permitted the Moldavian-Russian army, under admiral Tschitschakoff, to put itself in Napoleon's line of communication. Leaving some forces behind to employ the Austrians and Saxons in Volhynia, he proceeded with the rest of the army to the Beresina, where he tried to form a junction with Wittgenstein on the Dwina, in order to cut off Napoleon altogether. *

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* The St Petersburg papers of October, in the official account of the taking of Warsaw, say that 132 pieces of cannon, 2,000,000 of cartridges, a vast quantity of military stores of every description, and immense magazines of provisions, fell into the hands of the Russians; that 3000 prisoners were taken, among whom were sixty staff and superior officers; that many more must have perished during the attack, by the burning of the buildings, and the destructive fire of the artillery, which, during the two days, expended 29,000 cartridges; that, besides the above mentioned prisoners, above 4000 soldiers of the Polish army, 1200 generals and officers, had quitted the Polish service, and joined the Russians; that the whole loss of the Russian army was 3000 killed, including sixty-three officers, and 7500 wounded, including 445 officers.

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[*] The first Russian western army was stationed along the Niemen as far as Grodno, and comprised six corps of infantry and two of cavalry. The second western army was in the vicinity of Slonim, consisting of four battalions of infantry and one of cavalry. The communication between them was kept up by the hetman Platoff, with 10,000 Cossacks, at Bialystock. The army of Volhynia, under Tormassoff, at Lutzk, was composed of two divisions of infantry, and one of cavalry, containing together about 20,000 men. In Courland, Riga was protected by general Essen with about 10,000 men. One reserve was formed by general Miloradowitsch in Novgorod, another by general Œrtel in Smolensk. There were, moreover, 16,000 men under Steinheil, in Finland, which, subsequently, with the 25th division of infantry from Petersburg, reinforced the corps of Wittgenstein. In September, Kutusoff's army of 85,000 men, which had been till then employed against the Turks, first united itself with the forces of Tormassoff. Soon after the invasion commenced, militia companies were formed in Moscow, Petersburg, and other places, for supplying the army. Some of these companies fought at Borodino, and several divisions of them accompanied the army in Germany, in 1813. The Russian plan of the campaign was, by retreating, to avoid a decisive battle, until the enemy should be remote from all his resources, and weakened by marches through a desolate region, and the Russian army should be so considerably strengthened by the accession of all the forces that might be, meanwhile, raised, as to have a decided superiority. The bodies of troops detached on the two wings, were to prevent the enemy from spreading out his forces, and to co-operate in his destruction, if he should be defeated. Calculation was also made of the possible arrival of the Moldavian army after the conclusion of peace with the Porte. Particular circumstances, however, gave rise to many errors in the execution of this plan. Napoleon's scheme, on the contrary, was, to use every effort to compel the Russians to battle, to destroy them after the defeat, and, pressing forward with haste to the capital, to proffer peace. Collateral corps were, meanwhile, to cover his line of communication with Germany, weaken the resources of the enemy, and lead them to take false steps. But the French commander, long accustomed to success, committed the mistake of attempting to carry on the war in Russia, as in Lombardy, without magazines: he overlooked the fact that he ruled the conquered country only in a comparatively small extent, and must, therefore, leave the enemy in possession of his resources: he entirely mistook the character of his enemy. He, nevertheless, made good use of the chief error of the Russians—the wide interval between the two western armies—by crossing the Niemen at Kowno, and advancing with rapidity to Wilna. Murat hereupon pursued the western army, which retired to the entrenched camp at Drissa. Macdonald drove general Essen back towards Mittaw, and Oudinot Wittgenstein to Wilkomirz. Two divisions under Kamensky were separated from the second western army, and joined the corps in Volhynia.

[*] According to Russian accounts, the first army alone was in the battle of Smolensk, as the second, immediately after the junction, had proceeded by rapid marches to Dogorobusch, and covered in its rear the road to Moscow. After the battle, the two armies again united, notwithstanding the exertions of the enemy.

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* Here the two wings of the Russians could attack with decided effect; for Wittgenstein, after being joined by the Finland corps, had defeated, on the Drissa, the troops left at Poloczk by Napoleon, with such loss, Oct. 18, that they had to retire across the Dwina. They, nevertheless, succeeded in uniting their forces at Czasnicki, Oct. 30, with the ninth corps. and Oct. 15, repelling Wittgenstein's attack on Smoliani. But, instead of pursuing his foe on the march to Rataliczi, Wittgenstein now turned against Baran, by doing which he abandoned the corps of Tschitschakoff, on the Beresina, to its fate. During this contest on the Drissa, the army of Volhynia was defeated, Aug. 12, by the combined Austrian and Saxon force on the Poddobna, and driven back to Lutzk, behind the Styr. But being reinforced to double its former strength by the army of the Danube, it soon compelled that body to retreat; and its commander, admiral Tschitschakoff, leaving general Sacken with 25,000 men at Brzese, marched thence, Oct. 27, in the direction of Minsk, in the rear of the main army of the French. The two bodies attempted to prevent him, but were themselves incessantly pursued by Sacken: and after they had beaten him at Wolkowisk on the 16th Nov., and driven him behind Brzesc, Tschitschakoff, who had already apprised Wittgenstein of his march, through colonel Czenitschef, succeeded in entering Minsk, Nov. 16, where he rested three days, captured Borissoff on the 21st, but left it again on the 23d, and on the 26th displayed his forces opposite the enemy on the Beresina. The Russian army on this day was still on the banks of the Dnieper. Wittgenstein should now have joined Tschitschakoff, but instead of so doing, he pursued, on the 27th, the division Partonneaux of the ninth corps. and captured it; but, meanwhile, Napoleon had effected, though with great loss, a passage over the Beresina, which Tschitschakoff could oppose, but not prevent.

The French army was by this means obliged to leave Smolensk on the 13th, and with the loss of two whole battalions, under Davoust and Ney, at a temperature of 5° above Fahrenheit's zero, to 8° below it, with no food but the flesh of the horses, perishing by thousands, hastening to anticipate the enemy, who were pressing forward from the north and south. This Kutusoff might, perhaps, have frustrated; but after the battle (November 18) at Krasnoi, from causes as yet unknown, he relinquished the pursuit, and Napoleon had the good fortune to be met by fresh troops from the Dwina, who compensated, at least in some degree, for the entire loss of his cavalry; and reinforced by these, under the command of Belluno, Reggio, and Dombrowski, he succeeded in deceiving admiral Tschitschakoff respecting the true point of passage over the Beresina, at Semlin, above Borissoff. There, on the 27th and following days, the passage took place with a loss of 20,000 men and a great part of the baggage and artillery. But the road to Wilna, which was entered, was very long, and the cold, which increased every day, together with the most horrible want, carried disorder, misery, and despair to the highest pitch. December 3, Napoleon issued his twenty-ninth bulletin from Molodetschno; and, on the 4th, at Smorgonie, he entrusted the command of the army to the king of Naples, and hastened himself under the strictest incognito, by way of Warsaw and Dresden, to Paris. Marshals, officers of high and low rank, followed the example of the emperor. No company kept long together. The sole object of all was to save life, and, if possible, the booty taken from strangers or their comrades. In Wilna, the last remains were attacked by surprise, and driven to the Niemen, behind which they dispersed in all directions, carrying pestilence wherever they went. Of the whole army which crossed the Niemen in June, the Prussian almost alone returned, which had saved itself by a capitulation (at Tauroggen, December 30), and remained in arms, under York, in Prussia. The Austrians and Saxons, driven back to Warsaw, also returned to their frontiers. The capitulation of the Prussian general York, was the signal of the awakening of the Prussian people, who, for five years, had been humbled by the French. January 22, the king went from Potsdam to Breslau, and (Feb. 3, 1813) summoned all capable of bearing arms to battle for their country. He did not yet designate his object, but his people understood him, and, with unparalleled enthusiasm, thousands poured forth to the places of rendezvous, from every section of the country; thousands too old for battle contributed their savings. In vain had the French, with the aid of their last reserves, and of troops thrown together in haste, made efforts to remain on the Pregel, on the Vistula, and on the Oder. The Russians advanced slowly indeed, but every where with overwhelming power; and the viceroy of Italy, on whom Napoleon, had devolved the chief command, could do nothing but retire behind the Elbe with the least possible loss. March 8, after the last battle, he crossed the river to Magdeburg. Prussia now declared war against France, and concluded an alliance with Russia. Shortly afterwards, Kutusoff's proclamation at Kalisch announced the dissolution of the confederation of the Rhine, March 25th. Meanwhile, Napoleon had formed in France a new army, which passed the Rhine at the end of March. But Austria was neutral, the confederation of the Rhine without strength and without will, the popular insurrection almost universal in northern Germany; along the Elbe and to the Weser, time alone was needed to arm the people, who were here more enraged than in many other German countries, because they were more immediately and severely oppressed by French dominion. Napoleon appreciated the danger, and hastened to dispatch the most necessary forces to the points most threatened. Happily for him, the Russians and Prussians were not in a state to derive the full advantage from the favourable situation of things. The forces of the Russians were almost exhausted; those of the Prussians had first to be formed; the blockade of the fortresses on the Oder and Vistula occupied many troops. Kutusoff manifested little zeal for the emancipation of Germany, and wished it to be attempted, not from Saxony, but on the Lower Elbe; time was lost in negotiations with the king of Saxony, during which Kutusoff fell sick, and died, at Buntzlau, April 28. The viceroy was thus enabled to unite the remnants of the army under the walls of Magdeburg, and even advance against Berlin, by this means occasioning the indecisive engagement at Leitzkau or Möckern, April 5, while Vandamme and Davoust, between the Weser and Lower Elbe, put down the popular fermentation with iron hand, and threatened the city of Hamburg, which had most spiritedly shaken off their yoke; when the whole right bank of the Elbe was cleared of the French by the bold Rettenborn. The allied army, hardly 70,000 strong, now had in front an army of the French of almost twice their strength. Napoleon united his forces with those of the viceroy, who marched in a southerly direction along the Saale, and crossed this river at Wettin, while Napoleon passed it at Jena. May 1, he advanced upon the Elbe. The Prussians and Russians saw themselves in danger of being cut off from the river by a march from Merseburg by way of Leipsic, and resolved to give battle. The engagement was commenced at Grossgörschen, not far from Lützen (q. v.), about noon of May 2, and had no object but to surround Napoleon, who was pressing on to Leipsic, with the left wing, cut him off from the Saale, and with the right attack his flank. But this was well protected by detachments posted in the villages of Grossgörschen, Kaja, &c. Unexpected as was the attack, the French resisted it with bravery. Napoleon's main body, divided into large squares, either repelled all attacks, or soon recovered their lost advantages. The engagement in the villages thus lasted, with terrible slaughter, till dusk, when the corps of Lauriston, forming Napoleon's vanguard on the way to Leipsic, came up to attack the allies in the right flank. This compelled them to retreat to their old position, which, not being pursued by Napoleon, they left, May 3, retiring to the Upper Elbe, without loss of artillery, but with great loss in killed and wounded (about 15,000), which was, however, at least equalled by the loss of the French. Napoleon followed the allies with the infantry, but from want of cavalry, which was still behind, could do them but little damage. May 8, he was already master of Saxony and the Elbe, Dresden having been evacuated, Torgau having been opened by general Thielemann, and the siege of Wittenberg having been raised. The king of Saxony now had to return from Prague, and Napoleon proceeded to Lusatia, where the allies, reinforced by a body of 17,000 men under Barclay de Tolly, awaited him at Bautzen, behind the Spree, in a strong position.

But Napoleon had also received new forces from the confederation of the Rhine and from France; and thus began, May 19, the prelude to a second great battle, which was fought on the 20th and 21st, at and near Bautzen, and, the right wing of the allies having been surrounded, terminated to their disadvantage, so that the Prussians and Russians drew back towards Schweidnitz, in Silesia, and the French advanced to Breslau, though with several losses, especially at Görlitz, where Duroc and two other generals fell, and at Hanau. A truce, which was concluded June 4, under Austrian mediation, at the village of Pläswitz (in the circle of Strigau), allowed the French to remain masters of the Oder as far as its entrance into the Saxon territory, and of the whole Elbe to its outlet, while it also allowed the allies to procure reinforcements, to await the arrival of the crown-prince of Sweden, who took an active part against Napoleon, and to give Austria time either to complete its preparations and join the allies, or to negotiate a peace, which was to be discussed in a congress to be held at Prague. This truce was peculiarly disadvantageous to Napoleon. He derived no advantage from it, except that a number of bold partisans, who swarmed in his rear, had to retire over the Elbe till June 12, and that he could maintain Hamburg, which, supported by so many friends, —Danes, Swedes, Prussians, Russians, Englishmen,—and finally abandoned by all, had been already occupied by the French, June 2, through Danish mediation. The congress of Prague began its session at a late period, and led to nothing. Russia and Prussia made such conditions as were required by national honour and independence; the mediation of Austria, and the neutrality which she had observed, Napoleon regarded as infidelity to the alliance of the previous year. Austria evidently took part in the negotiations at Prague, without a sincere wish for peace. August 17, the war began more fearfully than ever. The participation of Austria in the war Napoleon had anticipated after the battle of Lützen, and he had, for that cause, sent the viceroy with officers and subalterns to Italy, to collect an army. For the same reason, Bavaria had to draw out its forces on the Inn. They were joined by a corp of chosen men, chiefly cavalry, which had come from Spain. But the main bodies on the side of Napoleon were stationed on the Upper and Middle Elbe and at Hamburg; those on the side of the allies, in Bohemia and Silesia, with the exception of the great corps which covered Berlin, and protected the Lower Oder against Davoust. The allies had agreed, especially since the convention at Trachenberg, on the 9th, 10th and 11th July, to surround Napoleon's flank, from Bohemia, his right in particular, and to cut him off from his base of operations. For that purpose, Blücher immediately drew back as Napoleon advanced against him, while the main army, under the command of prince Schwartzenberg, entered Saxony; and Dresden, which had been fortified at the time of the truce, had begun to cherish hopes, when Napoleon's main forces arrived from Lusatia by forced marches, and not only repulsed the assault on Dresden (q. v.), but also (August 27) inflicted on the allies a defeat, which, as they were cut off from the main roads to Bohemia, and all the by-roads were destroyed, would have caused the annihilation of the whole army, if from that moment Napoleon's star had not set for ever. The victor at Dresden, on the 26th and 27th August, where Moreau was mortally wounded, was stayed in his progress by the defeat of Vandamme, at Culm, August 30; by the simultaneous overthrow of his army in Silesia, under Macdonald; by the hard-fought battles at Gross-Beeren, August 23, at Belzig, August 27; and by the defeat which Ney suffered at Dennewitz, September 6. In addition to these misfortunes, want of all kinds prevailed in exhausted Saxony, and lamentations in the hospitals, where thousands perished of dysenteries and fevers. At last, by some rapid, well-covered marches, Blücher formed a junction on the Elbe with the crown-prince of Sweden, while he surprised a French corps under count Bertrand, watching the passage at Wartenburg, and took up a position between the Muldau and Elbe. As soon as he was advised of this, Napoleon started from Dresden, October 7, in the hopes of overpowering them both separately. But they had already crossed the Muldau to the Saale. The great Bohemian army had also advanced on his right flank. These and Blücher's flying corps met in his rear, and general Thielemann, who had exchanged the Saxon service for the Russian, took whole troops of French fugitives, and fought several battles between the Elster and the Saale, almost all of which resulted to the disadvantage of the French. On the opposite side, the bold Czernitschef pressed forward so rapidly with his Cossacks to Cassel, that he was able, October 1, to declare the kingdom of Westphalia dissolved. After some movements on the right bank of the Elbe, which seemed to threaten Berlin, Napoleon proceeded with his main army to the plains of Leipsic, at which he arrived with the guards, October 14, when Schwartzenberg had already commenced against the king of Naples, who had commanded the left wing of Napoleon from Dresden, a reconnoisance, which resulted in a smart skirmish of the cavalry at Liebertwolkwitz. Meanwhile, Augereau had brought up an excellent *corps de reserve:* his army had also been reinforced at Erfurt by 14,000 newly organized fugitives; and, as he probably thought, that he had deceived the crown-prince and Blücher by movements made on the other side of Wittenberg, and that he had gained so much time, that he could meet the great Bohemian army alone in a decisive engagement, he did not delay to encounter it in the spacious plain near Leipsic, between the Pleisse, Elster, and Parthe. About nine o'clock in the morning of October 16, the engagement commenced to the south of Leipsic. Napoleon had rested his right wing, under Poniatowski, on the Pleisse, and strongly garrisoned all the villages from Konnewitz to the river. His centre was stationed at Wachau. The left wing was supported by the heights of the Parthe. Prince Schwartzenberg sought to turn the right wing; but all his efforts were vain, because Napoleon made such progress in the centre, that all the reserves destined for that manœuvre had to be used for the reinforcement of the centre. After destructive attacks on both sides, Napoleon had gained some ground in the centre and on the left wing. Count Bertrand repelled an attempt of the Bohemian army to gain possession of the defile of Lindenau, and, at the same time, of Napoleon's whole line of retreat, perhaps of the city of Leipsic itself. But the duke of Ragusa was very unfortunate at Möckern, where he occupied a wide line to the north of Leipsic, and was unexpectedly attacked by general Blücher with the greatest impetuosity, totally defeated, after an obstinate resistance, on his left wing, and driven back, in disorder, to Gohlis. On the 17th, Napoleon negotiated, through count Meerveldt, who had been taken prisoner, for liberty to retire undisturbed, and for an armistice, both of which proposals were the less listened to, because the allies could now conduct their operations with a mutual understanding, the crown-prince of Sweden having joined Blücher with upwards of 60,000 men, and general Bennigsen, with almost an equal number, being every minute expected from Grimma. October 18, therefore, a fearful conflict took place at Leipsic. The French fought with desperation, to save their honour and secure their retreat, which had been commenced at day-break. Their centre and their right wing, from Probstheyda to Konnewitz, remained firm. The left, supported in Schönfeld on the Parthe, was defeated rather by the defection of the Saxons and Würtembergers, than from want of bravery; and nothing but the inexplicable carelessness of Napoleon on the 19th October converted the regular retreat, at last, into a flight, and a general overthrow of the rear. (See *Leipsic.*) This battle emancipated Germany. Bavaria had already (October 8) renounced the confederation of the Rhine, and united with Austria. All the German princes followed this example, with the exception of the king of Saxony (prevented by his imprisonment in Leipsic), Jerome of Westphalia, and the prince-primate. After the loss of many thousands, in prisoners and disabled, Napoleon, assailed or harassed in every quarter, was obliged, in order to gain the Rhine, to sustain a bloody conflict (October 31) with the Bavarians and Austrians stationed at Hanau. (q. v.) The allies made a halt on the Rhine, in order to unite the forces of liberated Germany with those furnished by Britain and Holland, which was now working its own emancipation. The number of troops collected against Napoleon in 1814, amounted to 1,208,000. The only remaining vestiges of Napoleon's power were the fortresses on the Vistula, Oder, Elbe, &c., in which, however, his best troops, cut off from all succour, finally perished, from want and suffering, or were forced to surrender. Even the Danes, who had been forced to form the closest union with Napoleon, in consequence of the hard terms proffered them by Britain and Sweden in the spring of 1813, were obliged to concede to the crown-prince of Sweden, in the peace of Kiel (January 14, 1814), all that they had formerly refused. The Rhine having been passed subsequently to January 1, 1814, at Caub, Manheim, Rastadt, Ehrenbreitstein, and Düsseldorf, it was easy to see that Napoleon would be eventually overpowered, because in France many had fallen from him since fortune forsook him, and the old aristocracy raised their heads again, whilst the people at large were exhausted by war. Immediately after his arrival, he had indeed set every spring in motion, in order to repeat, once more, the unexampled exertions which had been made in 1811 and 1813. But affairs in Spain had taken a most unfavourable turn. Marshal Jourdan had been totally defeated by Wellington, at Vittoria (June 21, 1813), and had been forced back to the Pyrenees, with the loss of his artillery; and, subsequently, Soult and Suchet had with difficulty kept the enemy from the soil of France itself, and it was consequently necessary to send thither new forces. For the first time, therefore, the senate ventured, though timidly, to represent the misery of France, when repeated decrees of Napoleon ordered the levy of nearly half a million new conscripts of 1807—1814, the organization of cohorts of national guards, and the formation of four armies of reserve. Still stronger terms did the deputies Lainé and Raynouard use in the legislative body; and, in consequence of the general indignation at the enormous expenditure of human life, great difficulties now presented themselves, when the demands of self-defence were imperative, in the way of collecting the myriads which were necessary, and to provide them with artillery, horses, and other requisites. Beyond the Rhine, therefore, from Switzerland to Holland, which was for the most part voluntarily evacuated by the French, the allies found but little resistance. Almost without loss of blood, they were able to gain possession of mount Jura, to put their left wing in communication with the Austrian army of Italy (which, commanded by general Hiller, had threatened, from Tyrol, to cut off the viceroy, and had obliged him to retreat to the Adige), to make themselves masters of all the passes to Italy, of the city of Geneva, of the roads over the Simplon and Bernard, and, as early as the 9th January, to occupy a new line, covered on the left by the Seine, on the right by the Meuse, in Alsace, Lorraine, Deux-Ponts, &c., with the exception of the invested fortresses. Napoleon had issued a proclamation for a kind of general rising of the people, or a levy in mass. This measure, which did wonders in the revolution, had, in this instance, but little effect among the suffering people. In a few quarters only, and not till the excesses of the enemy, exasperated by national hatred, had occasioned excitement, did the call produce some effect, but could give no new direction to the course of affairs. The allies, continuing to advance, occupied the Saar the Moselle, the passes of Ardennes, almost without a blow. In no instance had a French general strength enough to maintain the most important points against the overwhelming force of the invaders; and it was hoped, by the middle of February, to reach Paris in safety, when Napoleon, who left it on the 25th January, and went to join his army (assembled, after infinite trouble, on the Aube), fought, from January 27 to February 3, a number of battles, which, with that at Brienne, on February 1, form one of the most striking exhibitions in military history. Napoleon put forth all his skill. He lost the battle of Brienne, after his army of 70,000 men had made the most desperate resistance, which, regardless of danger, he superintended every where, and left behind seventy-three cannon, and 12,000 prisoners, to retire, as it seemed, beyond Troyes. Meanwhile, the eagerness of the allies to improve the first victory on the soil of France, gave rise to a separation of their forces, of which Napoleon took advantage judiciously and boldly. Having received on wagons new troops from the army of Spain, he proceeded, with rapidity, from the Seine to the Lower Marne, along which the army of Blücher was marching, in security, to Paris. He broke through its centre, and destroyed, at Champeaubert (February 10), the column of general Olsusieff. Without the aid of general York, general Sacken would have met with a similar fate the next day, at Montmirail. In like manner (February 14), Napoleon repulsed, with considerable loss, at Vauchamp and Etoges, the columns led by the field-marshal himself. With great exertions, a union was, at last, effected with Blücher's reserves. Schwartzenberg and

Wrede were then, with the Würtemberg troops, beyond the Seine; for Napoleon had been deemed sufficiently enfeebled to allow them to proceed towards Paris in two large columns, one on the Seine, the other on the Marne. This idea had been, in part, recommended by the barrenness of Champagne. The great triangle between the Seine and Marne consequently separated them, for in it stood Napoleon's army. To make a lateral movement, it was necessary to cross the Seine, over which there were only two points of passage, at Nogent (strongly fortified) and at Bray, without a bridge, but in sight of a weak French reconnoitring party. Napoleon now hoped to gain important advantages over the army of Schwartzenberg. Wrede, united with Wittgenstein's corps, had to return across the Seine (February 17). On the 18th, Napoleon attacked the Würtembergers, at Monterau, at the confluence of the Yonne and Seine; but they retired, though with loss, to the left bank of the Seine. Schwartzenberg now hastened back, and passed the Seine at Troyes, to renew his communication with Blücher. Constantly hard pressed, the allies had to continue retiring; and the situation of affairs was so uncertain that, in the head-quarters of the monarchs themselves, a diversity of opinions prevailed, which had an influence on the congress of Chatillon. (q. v.) But in this very crisis, which inspired Napoleon with such hopes that he raised his demands higher at Chatillon than he had done since the battle of Leipsic, a new turn was given to affairs. The allies concluded the treaty of Chaumont. (q. v.) After the indecisive battle of Bar sur Aube (February 27), Napoleon marched against Blücher, who was approaching the northern army, the van of which had already taken Soissons, but had lost it again. But in a lucky moment, Soissons capitulated (March 2), and Blücher formed a junction with the northern army, under Bulow, who had taken several fortresses in the Low Countries and Picardy, especially La Fere (February 26), with a great quantity of stores, by means of general Thümen. The duke of Weimar, who arrived with 30,000 Saxons and other troops, had blockaded the unconquered places. On the extreme left wing, also, of the allied army, from Geneva, the most decided advantages were gained. The count of Bubna here, likewise, had been obliged to contend, till February 25, with obstacles of all kinds. Marshal Augerau, inspirited by some reinforcements from Spain, had received from Napoleon orders to advance on this side, and repulse the left flank of the allies. All the Austrian wounded were taken to Berne, and Geneva was considered in great danger; but when the prince of Homburg and count Bianchi came up with considerable reinforcements, Augerau lost his former advantages as rapidly as he had gained them. Napoleon now saw himself in danger of being surrounded on both flanks, and confined between the Seine and Marne. He therefore (March 9) attacked Blücher's army at Craone, and, on the 10th, gave battle at Laon, and was defeated. He now returned across the Aisne and Marne, took Rheims, and threw himself with impetuosity on Schwartzenberg, at Arcis sur Aube; but, repulsed on the 20th and 21st, with loss, he resumed his former plan, to approach the Rhine in the rear of the allies, supported by the fortresses of the Moselle, exhort the people to a general rising, unite with Augerau, and intercept the retreat of the allies. But the allies, merely keeping watch on him, made a rapid march to Paris (q. v.); for marshal Angerau had already been driven back to Lyons, which capitulated March 21. After the victory over Soult at Orthes, February 27, the British had gained possession of the city of Bordeaux, and driven back marshal Soult to Toulouse. Finally, advices were received at head-quarters, from Paris itself, disclosing the existence of an anti-Napoleon party, and describing the conquest of the city as easy, it being defended solely by the national guards. The battle of March 30 gave them access to the capital of France. Napoleon's family had already fled from the city. Alexander now declared that he would never treat with the emperor or his family. April 1, a provisional government was organized by Talleyrand, which declared Napoleon deposed, and transferred the crown to the Bourbons. Napoleon hastened back too late for the preservation of Paris. He approached only as near as Fontainebleau. Here the fragments of the troops which had left Paris, according to the capitulation, were reunited; but Marmont, with his corps, abandoned the emperor April 4. After many negotiations, Napoleon abdicated the throne, stipulating only for the imperial title, the island of Elba, with entire sovereignty, two millions of francs, &c., all of which were granted him. April 9, an armistice was concluded with all the French commanders. Most of the fortresses situated without the boundaries of ancient France, opened their gates; the others, situated within it, acknowledged Louis XVIII. willingly or unwillingly. Davoust, in Hamburg, hesitated the longest: he did not depart till May 29. At the same time, the taking of Paris decided the fate of Italy. In this country, partly through the excellent precautions of the viceroy, partly through the equivocal conduct of Murat, king of Naples, who had left the party of Napoleon, and, favoured by Austria, embraced that of the allies, without doing any thing in good earnest for them, the war had not taken a decisive course. Since the battle which the viceroy had fought with the Austrian general on the Mincia, he maintained his position on this river, with an army of 30,000 men, at most, against the same number of Neapolitans and 50,000 Austrians. The accounts from Paris gave here, also, a new direction to affairs. April 16, a truce was concluded, which allowed the French troops to depart for France, and compelled the Italian to remain. But an insurrection in Milan made a change in regard to the condition, that the fate of Italy should be decided in Paris; and prince Eugene resigned his command of the troops to the Austrian general Bellegarde (who had taken Hiller's place), and went, by way of Verona, to Munich. Meanwhile, the count of Artois had entered Paris, as the representative of Louis XVIII. April 23, he concluded a general truce with the allied monarchs, and a preliminary treaty respecting the future conditions of peace. Louis XVIII. entered Paris himself, May 3. On the 5th, Schwartzenberg resigned the chief command, and the armies retired with rapidity to the Rhine, though peace was not signed till May 30. (See *France, since* 1814.) On the whole, on account of the great expectations excited by the hatred against France, the joy at this peace was very slight, although it had taken from France upwards of one hundred fortified places, and twenty-five millions of souls.

The tranquillity of Europe was soon again disturbed. In France, Louis XVIII. did not succeed in winning the love of the people, to which he had so long been a stranger. Napoleon, therefore, escaped from Elba, and reascended the French throne March 20, 1815. (See *Bonaparte.*) The monarchs being determined to support the Bourbons, the flames of war were again kindled. About 770,000 soldiers were gathered from Germany, Russia, Belgium (which was united into one kingdom with Holland), Britain, and Denmark. Napoleon, on his side, was not idle. From all France, he had convened in Paris, to a great *champ de Mai*, in the beginning of June, 4000 deputies, who swore fidelity to the new constitution and to him. From the 20th March, he, Carnot, Davoust, and others, had done every thing to put the army in a respectable state. Their efforts were very much aided by the enthusiasm of the old soldiers, who had, meanwhile, returned home from imprisonment. The Austrian emperor was threatened by a storm in Italy, which seemed to be connected with that in France. Murat, king of Naples, had been obliged to undergo, at the congress of Vienna, a contest with the Bourbon courts; so much the harder, as Britain was under obligations to the former king of Naples, and, moreover, understood Murat's equivocal behaviour the year before, and therefore declared, in express terms, that he could not remain king. Austria alone, the more faithful to her engagements with him because it was less for her advantage to have a Bourbon for a neighbour, in the south of Italy, spoke in his favour; but either gave up his cause at last, or, at least, Murat thought himself abandoned by her, or believed that the landing of Napoleon would afford him means, during the prevailing fermentation in Italy, to make himself master of the whole peninsula; so that, on the 4th of April, without declaration of war, he attacked Rome and the Austrian line of troops with 50 to 60,000 men. The Austrians, hardly 12,000 men strong, under general Bianchi, retreated, fighting, behind the Po, where they maintained themselves till the troops sent thither in wagons had arrived; after which, general Frimont, who commanded them, advanced again so quickly, and so skilfully, that, twenty days after, Murat was in the most desperate situation; and his dispirited troops by degrees dispersed, and would not stand an attack. Surrounded, and cut off from the best roads, he saw himself forced to retreat continually through by-paths, where artillery and luggage were lost. An attempt to save himself by a truce, failed, from the firmness of the Austrian general; another, at Tolentino, May 1—3, to improve his situation by arms, was frustrated by the valour of his enemy; and, in consequence of this last vain attack, made with desperation, and much personal exposure, his army totally dispersed, and he himself fled to France.—His wife was taken to Austria. The wreck of the army, 5000 strong, laid down their arms behind the river Volturno, May 20. Half the Austrian army, on account of the unexpectedly slight resistance which they had met with, had proceeded to Upper Italy, in order from thence to enter France, over the Alps. But orders from Vienna delayed the invasion, that the Russians might have time to come up. Half of June had consequently elapsed, when the attack was made on the side of Napoleon, equally impetuously and unexpectedly. Immediately after the *champ de Mai*, he left Paris for the army of 150,000 select troops stationed on the northern boundary, taking with him the guards assembled at Lyons, and, with them, attacked, at day-break, June 15, more than 200,000 British and Prussians, who were encamped along the Dyle and Sambre, under the command of Blücher and Wellington. Without giving them time to unite, he drove the Prussians back behind the Fleurus, and defeated them at Ligny, June, 16; while Ney attempted to retard, at Quatre Bras, the British, who were hastening on the Brussels road, and prevent their junction with Blücher. In the battle that took place there, in which the duke of Brunswick fell, Ney was unable entirely to accomplish Napoleon's object; but neither could Wellington come to the succour of the Prussians, who were, therefore, obliged to make a retreat, in which they were favoured by the darkness of the night. The next day, Napoleon detached two of his *corps d'armée* to pursue the Prussians, who were retreating to Wavre: with the rest of the army, he advanced, on the Brussels road, to crush the British, as he thought he had crushed the Prussians. Wellington had, meanwhile, assumed a position before the great forest of Soigny, on an elevated plain, which formed a natural fortress. (See *Waterloo, Battle of.*) On the 18th, Napoleon attacked this position, in the conviction that the British would not make a long resistance. But all his attacks were unsuccessful, and the more he wasted his forces in vain, the more terrible was his defeat, when, towards evening, the army of the Prussians, beaten on the 16th, but only the more eager for battle, coming up from Wavre in two divisions, fell upon the right wing and rear of the French army, through the defile of St Lambert. Wellington now making a general movement forward, in one hour the whole French army was dispersed, and Napoleon himself carried along with the fugitives. Blücher ordered all the cavalry to pursue the fugitives in the moonlight night. All the artillery and baggage was lost; no point of retreat was specified; they who had hoped to be in Brussels in the morning, wandered about on the Sambre, in the most melancholy condition. Not a single *corps d'armée* opposing the conquerors, the fortified places situated in their route, were taken or surrounded. Deputies from Paris, suing for a truce, and announcing Napoleon's abdication, were not heard. The allies advanced, taking advantage of the first consternation. June 27, they were already masters of the main roads leading to Paris, and expected to gain possession of the capital without a stroke of the sword. But the two French generals Vandamme and Grouchy, who had pursued the Prussians, after the battle of the 16th, and had driven general Thielemann from Wavre, at the very moment when Napoleon's army was dispersed, made such a rapid and judicious retreat, that, to the surprise of both friend and foe, they arrived, with moderate loss, under the walls of Paris at the same time with Blücher and Wellington. Paris was better fortified that in 1814; but, as the fortifications were surrounded, the city was in danger of being stormed on its weakest side. Grouchy and Vandamme were the less able to encounter the allies, as every day brought accessions to the forces of the Prussians and British; a truce was, therefore, made, and Paris evacuated. (See *Paris.*) All the troops retired behind the Loire, with their baggage, artillery, &c., and on the 6th the city was surrendered. Thus the war was essentially decided by the battle of Waterloo. While the Russians, Bavarians, Würtembergers, and Austrians, were coming up from all sides, the French forces stationed in different quarters were too inconsiderable to do any thing but shed their blood in vain, notwithstanding the brave resistance of Rapp, under the walls of Strasburg, of Suchet before Lyons, and notwithstanding popular insurrections in several parts of Alsatia and Loraine. Armistices put an end, by degrees, to the war in these quarters the more speedily, because Louis XVIII. had already made his entry into Paris, July 9. Immediately after his return, Napoleon had abdicated. He hoped, perhaps by that means, to appease the storm, and departed for Rochefort, where he finally, July 15, surrendered to the British. In Paris a diversity of opinions prevailed in the chambers of peers and representatives. Their attention was occupied, while the conquerors advanced, with the subjects of a republic, of Napoleon II., and a new constitution; till Fouché, who stood at the head of the provisional government, closed their halls, and Louis reascended the throne, strongly as such a proceeding was deprecated by the voice of the people in the chambers, and in the army. This restoration had much influence on the event of the war. The princes had received Louis as their ally. In their declarations, they had spoken merely against Napoleon, not against the French people. The more active a part the people had taken against them, and the more strongly they still expressed themselves in some places, against the Bourbons, so much the more cautiously had they to act, in order to maintain the Bourbons on the throne (contrary to the former opinion of the prince regent), against the will of the French people. France was, therefore, still overwhelmed with troops, and the ministers of the allies were engaged with those of Louis in the adjustment of political relations; but up to September 29, the parties were so far from agreeing, that the former all took their departure. Not till new ministers had been appointed, a few days after, by Louis XVIII., were the preliminaries of peace signed (October 2); these were confirmed in the definitive treaty of November 20, which—1, fixed the boundaries of France, as they were in 1790; but, 2, took from it the fortresses of Landau, Saarlouis, Philippeville, Marienburg, Versoix, with a certain circuit of territory about each, to be subsequently defined; 3, provided that Huningen should be dismantled: 4, fixed an indemnity of 700,000,000 francs for the expense of the war, payable in five years; 5, provided that a line from Conde, through Bouchain, to Bitsch, should be occupied, for the same time by the allies, with 150,000 men, at the expense of France; and, 6, secured the demands of all private persons on France, with the exception of the bank of Hamburgh, emptied by Davoust in 1813. This was the actual termination of the war; for, till then, the northern fortresses of France had been beseiged, at least by the Prussians, and for the most part conquered. By a separate agreement, half voluntary, half forced, the restoration was granted of all the works of art, of Italy, Germany, &c., accumulated in Paris since 1792. Respecting Napoleon the allies agreed that he should live at St Helena, at the expense of Britain, as a prisoner of war, but with all the alleviations of which such a situation could admit. His family were banished from France, under penalty of death, and the members of it were obliged to have passports from the great powers. The banishment of the Bonapartes was again pronounced in 1831, together with that of the elder line of the Bourbons. Murat, impelled by an unhappy error, and deceived by the Neapolitan police, made an attempt to recover his kingdom, and, Oct. 13, died the death of a criminal, at Pizzo, in Calabria. See the *Histoire de l'Expédition de Russie*, with an atlas, 3d edition, Paris, 1825, 3 vols., by the French colonel of artillery, marquis de Chambray. The Russian colonel Butturlin's *Hist. milit. de la Campagne de Russie en* 1812, Paris, 1824, 2 vols., with plans, was used by Chambray, in the new edition of his work. See also the marquis of Londonderry's *Narrative of the War in Germany and France in* 1813 *and* 1814; and Segur's *Histoire de Napoleon et de la Grande Armée pendant l'Année* 1812 (Paris, 1825, 2 vols.).

Russian Language and Literature.—Under this head we must distinguish two languages: 1. The Russian language, originally the dialect of the Sclavi, who founded the empire. It underwent, as did the empire itself, various changes. Thus it has, by degrees incorporated into itself much of the Scandinavian, Mongolian, Tartar (1225 to 1477), and German, also the Polish and French languages. The improvement of this forcible and harmonious idiom is not, however, concluded, but is continually advancing, by means of the national literature.—2. The Sclavonian language, or that of the Sclavonian Bible. It was fixed by the translation of the Holy Scriptures, and so settled that it has since experienced but few alterations. It is the language of the Bible, of the old chronicles, as, for instance, Nestor's, about 1100, of the ecclesiastical laws, of some of the pastoral instructions, and of the prayers in the liturgy.—A mixed language arose from the combination of these two already mentioned, which is used in sermons, in rhetorical prose, and in the higher species of poetry. Its principal ingredient is the Sclavian language; but it has borrowed those words and phrases from the Sclavonian, which being used for the expression of biblical ideas and images, have thereby acquired more strength and dignity. The Sclavonian, however, prevails in sermons, and the Russian in oratorical prose, and in the more elevated kinds of poetry.

History of the Russian Language.—The first period, which was the longest, and most destitute of literary productions, extends from the foundation of the empire to Lomonosoff, who first introduced a permanent change into the Russian language. Important, as contributing to fix the written language, was the introduction of a current written character, whereby the unwieldy letters before used, and introduced by Cyril, were superseded (see *Cyril*), for the full expression of the tones, which are peculiar to the Sclavian language, and for which the Greek letters were neither suitable nor sufficient. Cyril had borrowed some characters from the Asiatic alphabets, the form of which was an impediment to a people not fond of writing. About the end of the seventeenth century, Elias Kopiewitsch improved it, and brought the letters to their present form, for the embellishment of which so much has been done in the last ten years, that the Russian characters may compare in beauty of form with those of any European language. The history of the Sclavian press, has, in modern times, attracted much attention, and a copy of a work printed in 1475 has been found. A Sclavonian psalter was printed at Cracow, 1481. The psalter of Kiev (1551) is the oldest work printed in Russia itself. Cracow was the cradle of Sclavonian typography. The oldest monuments of the language are, Oleg's treaty of peace and commerce of the year 912: Igor's treaty with the Greek emperor (945); the municipal charter of Novgorod (1019); but the most important memorials are the Russian laws in the time of Jaroslaff (who died in 1054); the expedition of Igor, a heroic poem of the twelfth century; popular songs, and the poems of the prince Cantimir, in the reign of the empress Anna. This predecessor of Lomonosoff possessed true talent, had received a European education, and was well acquainted with the classics. His poems consist of satires and epistles, in which, in imitation of Horace and Boileau, he described in true colours the manners and faults of his times. The spirit of his poems is modern, the form antique, but his verse is rhymed. He likewise translated into Russian Fontenelle's Dialogues on the Plurality of Worlds; but the language was as yet too little refined to preserve the beauty of the original. This period shows only individual monuments of a written language in the first stages of improvement. Peter the Great had, unintentionally, given it a retrograde direction, when he introduced many foreign expressions, in place of a great number of existing technical terms, which thus became disused, so that the language itself became poorer, and was disfigured.

The second period extends from Lomonosoff to Karamsin. Lomonosoff, a man of genius, created the language of Russian poetry, by the introduction partly of poetical expressions and partly of new forms, which he borrowed principally from the German literature, and which served his successors as models. His example likewise shows how the Russian language can be enriched and ennobled by expressions and phrases from the Sclavonic. He first developed its grammatical structure, and contributed also to form its prose. His odes relate to the circumstances of the day; we find in them little poetry, but much rhetorical richness. In his tragedies the lyric tone prevails, and dramatic power is sought for in them in vain. In epic poetry, his Peter the Great was a first attempt; there are individual passages, indeed of great merit; but the poem, as a whole, is devoid of interest. His imitations of the Psalms are rich in poetical expression. His epistle on the utility of verse shows his great command of the language. Sumarokoff, an author celebrated in his time, is too diffuse upon every subject. His fertility in tragedy and comedy, in satires, epistles, elegies, eclogues, fables, epigrams and songs, gave him reputation; but in no department can he be considered a model. Keraskoff has produced two large epics upon the conquest of Kasan, and upon Wladimir the Great, besides tragedies, odes, and epistles. His language is beautiful, and far more smooth than that of Lomonosoff, but his talents are much less conspicuous. He was considered in his time as the Homer of Russia; but he is now forgotten.—Maykoff acquired a reputation by two burlesque poems, which were, however, not the less worthless on that account.—Kniäshjinin imitated the French in his tragedies and comedies, too closely, indeed, but not without talent. Some comedies in which he has interwoven many of the follies of the times in which he lived, have maintained themselves upon the stage till the present time. He very much excelled Sumarokoff; and some of his scenes, even now, are read with pleasure, although the language has proproceeded so far in improvement.—Kostroff deserves mention on account of his translation of the first books of the Iliad into Alexandrine verse, and of Ossian into prose. His language is not without force.—Bobroff, a wild genius, has left behind him a number of bombastic odes, and a descriptive poem, *Tauria*, a chaos, but which contains here and there some brilliant passages.—Bogdanowitsch, (q. v.), author of a poem called *Psyche*, in imitation of La Fontaine, is *naïf*, and full of grace and originality, but diffuse, and deficient in taste.—Oseroff belongs, if his language is considered, to this period, although his poems appear in that which followed. The plan of his tragedies is French, the language neither pure nor beautiful, but the expression is often forcible, and the description of the passions natural; some scenes are really tragic; some of his characters are well delineated and supported.—Petroff was a true poet, but his language is rude; he had many ideas and striking images. He celebrated the victories of Catherine the Great in his odes. His heroes were Potemkin and Romanzoff. His translation of the Æneid into Alexandrine verse is very unpolished in its language, but is full of power.—Lomonosoff also commences the series of prose writers of this period. His eulogies upon Peter the Great and Elizabeth contain few ideas, but much rhetorical ornament. Both of these writings are entirely different from those of his predecessors. They have very much improved the language, but still have not given it a permanent form. The same may be said of his scientific treatises upon electricity and metallurgy, of his Essay towards a Russian grammar, of his Rhetoric, which contains many fragments translated from the ancients. Weissen (Wisin) wrote two comedies in prose, full of genuine humour, which describe in true colours some of the absurdities of the age; both of these have maintained themselves upon the stage. He also wrote two very original satires, and some translations from Montaigne and Terrasson.—Muravieff, the tutor of the emperor Alexander, composed for his noble pupil several treatises upon Russian history, some dialogues of the dead, and some fragments, in the manner of the English Spectator, under the title of the *Suburban*. His style is not wholly pure, neither has he a great command of language: it is evident that he has formed his style from the imitation of French writers; but he is full of ideas, and particularly rich in imagery. When we read his works, we feel that his mind is conversant with all the beauty contained in ancient and modern literature. A good heart, a pure mind, and a love of virtue, are conspicuous in every thing that he has written. He was in advance of his age. But he had little effect upon his contemporaries, as he permitted but few of his writings to be printed, and his works did not appear till long after his death. In general, it may be said, that during this period the genius of Lomonosoff awakened a taste for literature in his nation. People eagerly read every thing that was printed, particularly poetical productions. In Sumarokoff they saw a great tragic writer, and in the poem of Keraskoff, with all its defects, an Iliad. They felt the beautiful, but did not know how to distinguish it from what was miserable. Taste was in the cradle, and criticism still unborn. We may consider this age as the awakening period of genius and poetry. In the last half of it, a man of genius made his appearance, who belonged to no school, of an original and peculiar mind, without high cultivation, but unique in his kind, and the true representative of Russian poetry. This man was Derschawin. He celebrated the glory of the Russian arms during the reign of Catharine, as did Lomonosoff and Petroff; but while these were only eulogists of their sovereign and her generals, Derschawin celebrated them in the true spirit of a poet. He remained a philosopher even at the foot of the throne: his own character appears in whatever he said of others: he awakened great and patriotic feelings, and at the same time described nature with inimitable touches. His productions, however, are not the best models, but they glow with a fire which kindles poetical sentiment. This period produced a great number of translations, particularly from the French; they are all, however, without merit as regards style, but they show the general desire and love of the age for literature. In this age the great dictionary of the Russian academy appeared, projected according to an entirely new plan, and in which the etymological order of the words is followed. This work furnishes great facilities for the study of the Russian language and literature. The Russian academy (founded October 21, 1783) has had great influence in directing the attention of authors to the pure elements of the language; several societies have likewise been formed for the improvement of the language. Finally, one man contributed greatly to the spread of literary taste, who had himself but little learning, but a good natural understanding, a love for the sciences, and withal a happy talent for illustration. This was Novikoff. He founded a typographical society, and edited a satirical journal, under the title The Painter, which at that time was very much read, and opened to Karamsin a field for the exhibition of his literary powers.

In the third period, Karamsin is the representative of prose, and Dmitrieff of poetry. The periodical edited by the former, after his return from his travels, effected a decided change in the Russian language. He revealed to his countrymen the secrets of happy diction, clearness, beauty and precision. The same perfection which he gave to prose, Dmitrieff gave to poetry. Karamsin's career as an author may be distinguished into three epochs. The first began with his editing the Journal of Moscow. In this publication appeared fragments of his Letters of a travelling Russian, and his tales, which were afterwards published collectively. These productions exhibit genuine taste, though they appear like the effusions of a youth. His remarks and notices of the writings of foreign countries, which appeared in that publication, excited an interest in foreign literature throughout Russia, and developed the germ of true criticism. The second epoch commenced with the publication of the European Courier. This periodical drew the attention of the public to politics, and awakened reflection. His essays upon some of the political topics of the day, and upon morals, are models in their respective kinds. His beautiful style gave to his ideas a still higher charm. The third epoch is marked by his History of Russia. This history, as a literary production, is a mine for all authors of his nation. No Russian prose writer since Karamsin has acquired a high reputation: greater purity, perhaps, prevails than did before, but his style has not been equalled. Many have wished to imitate him, but they have only shown their own inferiority. Makaroff has edited a Critical Journal; he wrote very correctly, but his style is dry. Batuschkoff has been able to give grace to his prose, and the Italian harmony to his verse. Shukoffskij was, after Karamsin, the editor of the European Courier, and wrote in it some essays on prose. These, and other authors, have each of them some peculiar merit, but they are not equal to their master. Besides, their works are unimportant, and cannot, therefore, much promote the further development of the language. The Russian literature is very barren in original works on the subject of philosophy. In the history of the language of poetry, Dmitrieff's imitations of La Fontaine and his tales make a particular epoch. Before him Lomonosoff, and especially Derschawin, had furnished models of poetical beauty, and opened the way to bold originality. Without checking the flight of genius, Dmitrieff knew how to direct it so as not to offend against taste and sound criticism. We possess about one hundred excellent fables by him, in imitation of La Fontaine and others, many songs, which have become popular, and odes, considered classical, without having the brilliancy of Derschawin's originality and boldness. Dmitrieff has given the language of Russian poetry its permanent form. Neledinsky-Meletzsky is less pure and correct than Dmitrieff, but many of his songs are in the mouths of the common people. The true fire of passion animates his poetry. Chemnitzer is esteemed as a fabulist; his expression is natural, but very prosaic. Kriloff, a poet in the full sense of the word, is, in his department, like Derschawin, the representative of the national poetry, for his fables are almost all original. Derschawin, in his odes, described the bright side of his age; but Kriloff, in his fables, painted the absurdities and prosaic thought of his time. In expression less pure and perfect than his predecessor Dmitrieff, he, however, excels him in descriptive powers. Kriloff has much observation: his fables, which, in this respect, will bear comparison with the best in any literature, are rich in ideas and instruction; many of his verses, therefore, are now current as proverbs.—Shukoffskij has enriched the poetical language of the Russians, by describing ideas and feelings which had not been treated in their literature. His poems are a true picture of his individual character at the time in which he wrote them. They therefore possess uncommon attraction for the reader. His predilection for German poetry, which was before his time but little known to his countrymen, induced him to incorporate it with the Russian in his imitations; his poems, on this account, have a peculiar stamp, which has given a singular charm to their deep melancholy feeling and natural tone. Batjuschoff pleases by the charms of his diction. With a brilliant imagination he united the finest taste, and he is inimitable in the choice and harmony of his expression. We possess of his writings some amorous elegies, ingenious epistles, and attempts at lyric poetry—all excellent. Prince Wiasemskij expresses much in few words: this sometimes gives his language an air of stiffness and dryness; but his satires and epigrams are particularly happy. His prose suffers still more than his poetry from this brevity.—Wostokoff has richness of thought, power of imagination, and warmth of expression; but his style is but little refined.—Gneditsch deserves much credit for his translation of the Iliad into Russian hexameters. The general characteristic of this period is an elegance and correctness previously foreign to Russian literature. The language has acquired a more settled character; but Russian prose still wants the labour of thinking minds to perfect it. The poetical language of the Russians alone can be called rich.

The latest period of Russian literature is yet in its bloom. Already it numbers one very promising poet, Alexander Puschkin, who is distinguished for his imagination and originality, and whose style is in the highest degree refined. Karamsin's historical work now opens a new field for national poetry.

Russian history was previously enveloped in the obscurity of chronicles and traditions. Karamsin dissipated this obscurity, and threw light upon the darkness of the past. Poetry, by his torch, may now light her own. Among other living poets, may be mentioned Kosloff; Gribojedoff, the author of a very amusing comedy; Glinka, a lyric poet, full of fire; baron Delwig (the editor of the Russian Almanac of the Muses, called the Flowers of the North, in 1825 and 1826); Schazykoff, Baratinskij, &c. Among the translators we may mention professor Mersläkoff of Moscow, who has translated Tasso's poem of Jerusalem Delivered. Russian prose enumerates, at the present time, but few original productions. There are many journals, but they are for the most part filled with extracts from foreign periodicals. The critical department of them cannot be important, because the national literature is poor; nevertheless, among a great number of tolerable prose writers, Gretsch has distinguished himself; his style is easy, although he sometimes offends against good taste. For many years he edited the best Russian journal. He has likewise been engaged in the composition of a Russian grammar. In connexion with this, besides the old Russian grammars of Ludolph (*Grammatica Russica et Manuductio ad Linguam Sclavonicam*, Oxford, 1696, quarto), of Groning (Stockholm, 1750), of Lomonosoff, Rodde, Heym (Riga, 1821), that of the Russian academy (St Petersburg, 1802), particularly that of Vater (Leipsic, 1808), and that of Tappe, on account of the happily chosen examples and practical exercises (St Petersburg and Riga, 1810; 5th edition, 1820), deserve to be recommended, as well as Puchmayer's System of the Russian Language, in German (1820). They all, at least the modern, embrace only the common Russian. For the Sclavonian or ecclesiastical language grammatical aids are greatly needed. The grammar of the ecclesiastical Sclavian, written in the Russian language, which Peter Winogradoff published in 1811, is far surpassed in value by Dobrowsky's *Institutiones Linguæ Slawicæ Dialecti veteris* (Vienna, 1822). The government itself has taken charge of grammatical education, and prohibited the sale of Lewitzkij's small Russian grammar (St Petersburg, 1814), which was put under the interdict of the minister of instruction, in 1814, "on account of its many defects and false definitions." Concerning the dictionaries of the Russian language, by Rodde, and Heym, a German, Russian, and French pocket dictionary (Riga, 1805), and many others, see the review, by Schlozer, in the Gottingen *Gelehrten Anzeigen*, 1810, number 47. Since that, A. Oldekop has published a Russian-German and a German-Russian dictionary, in 5 vols. The present president of the Russian academy, admiral and minister Alexander Schischkoff, caused a second edition of the academy's dictionary to be published in 6 vols. quarto, in the year 1826.

After having thus characterized the poets and prose writers who have had an influence upon the formation of the Russian language, we will touch more particularly on certain portions of the Russian literature, as follows:

I. The old popular songs and traditions, which were formerly neglected by the Russians, have now excited their attention, on account of their similarity to the English, Spanish, and Scandinavian ballads. Like these ballads, they appear to refer to a connected series of popular traditions. In that period, however, to which these old songs belong (1015—1124), the national poetry had not freed itself from the old Sclavian mythology: and the Russian tales and popular traditions have thereby acquired a peculiar charm of a fantastical description, which is particularly remarkable in the story of Filipat and Maxim, and their valorous deeds; the marriage of Devgieiewas, and the carrying off of Stratigovnas, in the tale of Shinagrip, the czar of the Adorians. Prince Wladimir I., with his knights, is the central point of this whole series of tales, which may be compared with the stories of Charlemagne and his peers, and those of king Arthur and the Round Table. The heroes, Dobrenja Nikititsch, and Tschurilo Plenkowitsch, and others, here take the place of the well known and harmonious names of Roland, Rinaldo, and Amadis. J. Müller published the Expedition of Igor against the Polowzians (from the old Russian; Prague, 1811 and 1812), and this poem has since passed through several editions in the Russian original. Prince Wladimir and his Round Table (Leipsic, 1819) is a German imitation, drawn from a collection of old Russian songs, which were printed at the suggestion of Romanzoff. Prince Zerteloff's Spirit of Russian Poetry, or collection of old Russian songs (St Petersburg, 1822, in 2 vols.), has excited the attention of the Russians to this portion of their literature. The ecclesiastics of that period displayed a peculiar degree of intellectual activity; and there were also laymen of considerable merit. Nestor has mentioned many men of rank who shared in this intellectual labour. These beginnings could not, however, be of permanent consequence, because literary institutions of a high character were wanting. The Greek teachers of the public schools at Wladimir, Smolensk, and Halitsch, did not diffuse a taste for Grecian antiquities, which might have been a permanent barrier against barbarism. The Mongolian period had a withering influence on literature. In the rich convents only, which the Mongols respected, were preserved some remains of intellectual cultivation. Thence are derived the materials for the history of that period, which alone give us some insight into it, particularly the annals in the old ecclesiastical language, composed by St Simon, bishop of Susdal (who died in the year 1226), the *Stufenbuch* of Cyprian, the metropolitan (who died in 1406), and the Chronicles of Sophia, or the Russian annals from 862 to 1534 (edited by Strojeff Moscow, 1820—1822, quarto). These, and the lives of Alexander the Great, of the Roman emperors, of Mark Antony, and of Cleopatra, related after the manner of stories, were the only books. As the authors despised the language in common use, which, by its additions from the Tartar tongue, had acquired a foreign character, displeasing, even to the people themselves, and made use only of the old Sclavonian dialect, the taste for reading, even if we do not take into consideration the other inconveniences attending it, must necessarily have been confined to a few. As the Russians did not travel, nor learn any foreign languages, they were not connected, by intellectual bonds, with the rest of Europe. There were no schools in Great Russia. The press exercised but little influence, as it was exclusively devoted to the interest of the church, and the amusements of the people were rude. In the dramatic exhibitions, which were founded on religious stories, and performed by the students of Kiev, in the principal cities, during their holidays, Judith striking off the head of Holofernes, Ahasuerus ordering Haman to be hanged, and the spectacle of the three men in the fiery furnace, excited the highest applause. The Sclavonian-Russian dramas of the monk Simeon of Polotsk (1628—1680) may be considered as an improvement on the others. These were acted in the time of Feodor III., first in the convent, and afterwards at court. Amateurs may find his Nebuchadnezzar, and his Lost Son, printed in the eighth volume of the old Russian library, and most of his other productions in manuscript, in the library of the Synod, at Moscow. The first foreign comedy translated into Russian was Molière's *Médécin malgré lui* (Physician in spite of Himself), which was performed by the czarina Sophia Alexiowna, and the ladies of her court. The Poles served as models, particularly in poetry; and the translation of the Psalms of David (Moscow, 1680), by the above-named Simeon of Polotsk, deserves to be mentioned. As early as the seventeenth century, instances of versification can be produced, which endeavoured to imitate the Greek peculiarity of long and short syllables; but they had no permanent effect. Even the restriction of verses to a particular number of syllables, was considered too stiff and unnatural; and, to the present day, there remains in their poetry (which, exhibits, for the most part, the national peculiarities) a free and unrestrained style, which neither requires lines equal in their number of syllables, nor assonance, nor rhyme, but rests upon certain laws of accentuation.

II. Peter the Great endeavoured to advance literature by technical aids. For this purpose he patronised the press, and, in 1704, himself invented a set of written characters for the Russian language, which, being similar to the Roman characters, might make the communication and interchange of thoughts with the rest of Europe more easy. With this character the first Russian newspaper was printed, in 1705, in the ecclesiastical press at Moscow. The ukase press was established in 1711, and from it, in 1714, proceeded the first St Petersburg gazette. Translations of foreign works, for the most part German, were intended to excite a love of reading; and he hoped, by means of the young Russians, whom he sent abroad to travel, to convince his people of the advantages of education. At his death, he left fifty-one schools for the people, fifty-six schools for the garrisons, and twenty-six other institutions for the children of the clergy, which, however, had little perceptible influence upon the great work of civilization. It was, however, less attachment to ancient usage, that opposed the effect of his labours on a people very susceptible of impressions, than the artifices of the state officers, to whom the public improvement was, frequently at least, an object of little importance. (See *Academies.*) The academy of sciences, from 1725, promoted the scientific direction which intellectual cultivation had taken, because the want of a national literature had not yet been felt. Establishments for the promotion of knowledge and education increased daily by imperial liberality, and Catharine II., by the patronage which she bestowed upon the arts and sciences, greatly contributed to the advancement of her nation. The endeavour to rival foreign countries became general, and those of the nobility and public officers who were capable of intellectual enjoyment, gave themselves up to it with such zeal that Paul I. became alarmed, and ordered the communication with foreign countries to be stopped. Alexander I., in the first years of his reign, established literary institutions and popular schools, took care that the clergy should be more thoroughly educated, and patronised talent with imperial liberality. Sopikoff, in his *Essai de Bibliographie Russe* (St Petersburg, 1813—1823, in 6 vols.), has enumerated, alphabetically, 13,249 original works and translations published in Russia, in the Sclavonian and Russian languages, from the establishment of the press (in 1553) to 1823. Since the year 1820, in which alone 3400 works appeared, among which nearly half were translations (more than 800 from the French, and 483 from the German), the annual number has very much decreased. In 1824, only 264 works were published, most of which were translations, particularly historical and geographical works, poems, and romances.

III. *Poetry.* With all the imitation of the poetical forms of foreign countries, the national song has always maintained an honourable rank, and celebrates love and war, games, church festivals, and banquets. Among the older ones, those of the Cossack Semen Klimoffskij (who died in 1725) are much esteemed: a collection of such as yet enjoy a high reputation, is to be met with in Ostolopoff's Dictionary of ancient and modern Poetry (St Petersburg, 1821), in which the names of Dmitrieff, Neledinskij-Melezkij, Karamsin, and Shukoffskij, are distinguished above all others. Since the Russian prosody became more settled by means of Knäs Constantine Demetrius Kantemir (q. v., who died in 1744), every kind of poetry has been attempted, from the dithyrambic to the madrigal. The popular songs of the Russians, which are preserved among the common people, belong to the time of Peter the Great and the empress Elizabeth, who herself wrote verse. The lyric department has been particularly successful. We must likewise mention the philosophic odes and epistles of the prince Ivan Michailowitsch Dolgorucki (who died in the year 1823), under the title of the Existence of my Heart. Poetical tales, for which the old traditions furnish many materials have been written by Sumarokoff, Kriloff, Batjuschkoff, Dmitrieff, and Shukoffskij. The Russian theatre was first established in 1758. In this year, there was a private theatre erected at Yaroslav, which was soon transferred to the royal residence, and, in consequence of the predilection of Catharine II. for the drama, soon won the favour of the people. Sumarokoff wrote the first regular tragedy, and was succeeded by Kniäshjnin. The most distinguished dramatic writer, Wladimir Oseroff, has had the honour of having his works often translated. His Œdipus (Petersburg, 1805), his Dmitrij the Donian, his Fingal, and the Rosloff of Kniäshjnin, are considered the most important specimens of tragic literature. Kniäshjnin has also accomplished much in comedy. The genius of the Russians, so sensible to the ridiculous, and so capable of imitation, would lead us to expect a rich harvest in comedy, if the readiness with which they adopt every thing foreign did not check the productiveness of native talent. The opera in a court, which, like the Russian, delights in splendour, must naturally excite a lively interest. The first, written by Sumarokoff, was performed at St Petersburg in 1764; and, since that time, there have continually been authors in this department of the drama. In didactic poetry, Keraskoff's Fruits of the Sciences formerly were in much repute. At the present time, the fables of Dmitrieff, Chemnitzer, and Kriloff have gained many admirers. Of Kriloff's

Russian fables (St Petersburg, 1826,) a part has been published in the Russian language at Paris, with a French translation, by count Orloff. The minor species of poetry find a ready admission into the twenty-one Russian literary journals (which were in circulation in 1824, throughout the capital), and are very acceptable to the literary public, which is yet small.

See N. von Gretsch's *Manual of the Russian Literature, or a Collection of Specimens from poetical and prose Writers* (St Petersburgh, 1821, in 4 vols.), and Borg's *Poetical Productions of the Russians* (Rigna, 1823, in 2 vols.), both in German; also Bowring's *Specimens of the Russian Poets* (2d edition, London, 1821), and Dupré de St Maure's *Anthologie Russe* (Paris, 1823). A. Oldekop's St Petersburg Journal is likewise to be recommended to all friends of literature, on account of the collections therein published. Among the periodicals, those which make us acquainted with the internal condition of the empire—as Bulgarin's Northern Archives; the Siberian Herald of Sspaszkij; the Son of the Country, by Gretsch; and the Promoter of Knowledge—are worthy of notice.

IV. *Prose.* Russian prose is undoubtedly inferior to the poetry of the same language. In pulpit oratory, in which its first progress was made, a bombastic rhetoric has prevailed, which is often accompanied with little intrinsic merit, as the homilies of Feofan Prokopowitsch (who died in 1736), of Gedeon, Platon, Anastasij, Georgij, Protoiereni Lewanda, Michajl the metropolitan, Filaret, and others, abundantly prove. Lately, a hypocritical rather than pious tone has passed from these homilies into political writings. The secular discourses, to which, for example, Lomonosoff owes his celebrity, are partly composed in a panegyrical style, which leads us to doubt the genuineness of the feeling which is displayed. Lomonosoff's discourse, however, on the character of Peter the Great, delivered April 26, 1755, is often mentioned as a masterpiece of eulogy. Karamsin's oration, delivered at the assembly of the Russian academy, December 5, 1818, corresponds more to the present taste. Nicholas Karamsin's name must likewise be mentioned with distinction in almost every department of description. He has given a Russian work which may be honourably compared with the historical writings of any nation. A great number of the most distinguished literati and statesmen of Russia, have preferred, in their works, to use foreign languages rather than their own. Russia has not yet produced romances, combining originality with beauty of description, which may be worthy of being translated into foreign languages. Karamsin, Shukoffskij, and Benizkij, are the best models for the novelist. The Russian accounts of voyages and travels deserve the attention of foreigners. Since the first voyages of the Russians round the world, in the ships Nadeschda and Neva, under the command of captain Krusenstern, the American company or individuals have annually sent ships to the north-west coast of America; and Golownin's Voyages (1807—1814): those of lieutenant von Kotzebue, at the expense of the count Romanzoff; those of lieutenant Lasareff; those of Bellingshausen and Wassiljeff; those of lieutenant Wrangel; Murawieff's travels; Broneffski's researches in Tauria, &c.—have produced very important results in a scientific point of view. Many of them exhibit traces of the improving state of the language, in passages containing much beauty of description. The Russian academicians and literati (Frahn, Krug, Schmidt, &c.) have distinguished themselves in Oriental literature. Frahn, at the expense of count Romanzoff, superintended the collection of extracts for Hammer's work. *Sur les Origines Russes, extraits de Manuscrits Orientaux*, and likewise the printing of Abulghasi's *Historia Mongolorum et Tatarorum* (Kasan, 1825). Wolkoff has been labouring upon a dictionary of the Tartar language. Senkoffski has published the text and translation of the Derbent-Nameh, and the French-Arabic lexicon of Berggren. He likewise published, in the Polish language, a Collection of ancient Accounts, in the Turkish Histories, relative to the History of Poland (Warsaw, 1824). Professor Boldyreff has likewise published, at Moscow, a Manual of the Arabic Language, (1824), and a Persian Chrestomathy (in 2 vols., 1826.) In 1825, eighteen journals were published in St Petersburg, and seven in Moscow, and six almanacs. Bestucheff's and Rylejeff's Polestar, a souvenir for 1824, and the Flowers of the North, for the following years, have met with decided approbation. In 1826, there appeared at St Petersburg only six gazettes and fifteen periodicals. To promote the knowledge of Russian literature, Von Köppen published in 1825, and 1826, at St Petersburg, a bibliographical paper. The society of the friends of Russian literature, established in St Petersburg in 1816, the founders of which are N. Glinka and N. J. Gretsch, have conducted the publication of a collection of the most distinguished native productions and translations (now consisting of 16 vols). See the *Survey of the most modern Russian Literature*, in the 7th volume of the Annals of Literature (*Jahrbücher der Literatur*), published at Vienna.

Russia, Black; formerly a subdivision of Lithuania, now forming the Russian governments of Minsk and Grodno.

Russia, Great; former name of a province comprising a large part of European Russia, extending from the Frozen ocean to about the middle of the course of the Don; now divided into nineteen governments.

Russia, Little; name of that part of Russia lying south of Great Russia; now forming the governments of Tchernigov, Cherson, Kiev, Ekaterinoslav, and Poltava.

Russia, Red; formerly an independent duchy, which belonged to Poland after 1396, and formed the palatinates of Chelm, Belcz, and Lemberg. It now belongs chiefly to Austria, but partly to Russia.

Russia, White; was a part of Lithuania, which now forms the Russian governments of Smolensk, Mohilev, Vitepsk, and a small part of Minsk.

RUSSIA LEATHER is prepared in Russia, chiefly from cow-hides, and is highly esteemed for its flexibility, durability, and impenetrability by water. The red leather is much used in foreign countries for book-binding, and, although it is imitated in some places, the Russian is distinguished by its peculiar odour. The best is made in Astrachan, and it now forms an important article of export.

RUSSIAN HUNTING MUSIC, or HORN MUSIC. This consists of horns, of which each produces but one tone. Twenty, thirty, or even forty performers, have each a horn. These horns vary like the pipes of an organ. One of them sounds only every C, another every D, &c., throughout the tune. The performers are, for the most part, serfs, and so well skilled, that every one sounds his note with the greatest accuracy, whenever it is necessary; and the tones of the different instruments sound as if they proceeded from a single instrument. The Russians have carried this music to such a pitch of excellence as to execute pieces of Pleyel, Haydn, and Mozart, and likewise to mark the distinctions between piano and crescendo, with the greatest effect. This music is heard at a great distance, and sounds, when far off, like a harmonicon. It was invented by Narischkin. In 1763, these instruments were used, with great success, at a festival at Moscow; and they afterwards received great improvements.

RUST is the oxide of a metal, and is composed of oxygen combined with a metal. See *Oxygen*.

RUSTY GRACKLE. See *Blackbird*.

RUTA BAGA, or SWEDISH TURNIP. See *Turnip*.

RUTHERGLEN; an ancient royal burgh of Scotland, situated near the south bank of the Clyde, in the lower ward of Lanarkshire, about two and a half miles south-east from Glasgow. The name is supposed by some to be derived from *Reuther*, one of the early kings of Scotland; by others, from the British *Ruth-ir-glan*, signifying the "red land near the river." The place was made a royal burgh by David I., about the year 1126, and confirmed by his grandson, William the Lion, some of whose charters are dated at Rutherglen. Its privileges and immunities, as appears from the charters yet extant, were very great. These, however, were gradually diminished, as the neighbouring towns rose into consequence, and the town itself seems to have been unable to make head against the commercial prosperity of the city of Glasgow. In 1671, a new *set* of the burgh was obtained, by which the right of the election of magistrates and council was vested in the burgesses. It thus possessed a more open system of suffrage than any other burgh in the kingdom, until the Municipal Reform Bill placed all constituencies on a level. The church of Rutherglen, a very ancient Gothic structure, dedicated to the virgin Mary, was taken down in 1794, and the present one erected. The castle, another ancient structure, which sustained several sieges in the fourteenth century, was burnt by order of the regent Murray, after the battle of Langside, and though partially restored, it has been since levelled with the ground. Before the passing of the Reform Bill, Rutherglen, with Glasgow, Renfrew, and Dumbarton, sent one member to parliament. It now joins with Kilmarnock, Renfrew, Port-Glasgow, and Dumbarton in sending one. Rutherglen gives the title of earl to the marquis of Queensberry. The fairs of this town have long been noted for a great show of horses, particularly the Lanarkshire breed, which are esteemed the best draught horses in Scotland; they are held on the last Friday in April, the first Tuesday in May after Trinity Sunday, the third Friday in July and August, the third Monday in October, and the third Friday in November, all old style. Some other horse markets throughout Scotland are regulated by those fairs. The parish of Rutherglen extends along the southern border of the river Clyde, about three miles in length and one and a quarter in breadth; the surface is diversified with slight elevations, except near the river, where it is level; the scenery is extremely pleasing; and the land is enclosed and well cultivated. Population of the burgh and parish in 1841, 6515. See Ure's *History of Rutherglen and East Kilbride*.

RUTLANDSHIRE; an inland county of England, the smallest in the kingdom, is bounded on the north by Leicestershire and Lincolnshire; on the east by the latter county; on the south-east by Northamptonshire; and on the south-west and west by Leicestershire. Its extreme length is eighteen miles from east to west, and fifteen from north to south. Its superficial contents, according to the trigonometrical survey, amount to 149 square miles, or about 95,360 acres. Nearly half the land in the county is under tillage, producing wheat of a peculiar fine quality, and also barley, oats, beans, peas, turnips, and tares. The quantity of pasture is said to exceed that of the arable land. Cheese is an important product of this county, that rich kind called Stilton cheese, being made in Leighfield Forest, and in the fruitful Vale of Catmose. There are some extensive orchards in Rutlandshire; and the woodlands consist of about three thousand acres. The rivers, besides the Welland on the south-eastern border of the county, are the little river Eye, on the south-west, which rises in Leicestershire and falls into the Welland; the Wash, or Guash; and the Chater, which also joins the Welland; the former below, and the latter above the town of Stamford. These streams are fed by numerous springs and rivulets gushing from the sides of the hills, and communicating fertility to the adjoining county. Between Teigh and Market-Averton is a chalybeate spring, which at one time was greatly frequented; and there are various others in different parts of the county. The four hundreds are Alstoe, East, Martinsley, and Wrandike; and the Soke is that of Oakham. There are no boroughs, and the only market-towns are Oakham and Uppingham. Population of Rutlandshire in 1821, 18,487; in 1831, 19,385, in 1841, 21,302.

RUYSCH, Rachel, one of the most celebrated painters of fruit and flower pieces, was born at Amsterdam in 1664, and died in 1750. Her pictures are distinguished for truth and splendour of colouring, united with great finish.

RUYSDAEL, or RUYSDAAL, James, one of the greatest landscape painters, was born, in 1635, at Harlem. His brother *Solomon* (born 1616, and known for the beauty of his representation of marbles, &c.) seems to have been his teacher. James died in his native city in 1681. His aim appears to have been a faithful, but poetical conception of gloomy, and sometimes wild, nature. Landscapes with dark clouds hanging over them, church-yards, or thick woods after a thunder-storm, cascades between thick foliage, lakes and rivulets surrounded by overhanging trees, &c., are his subjects, and are represented admirably. The figures in his paintings were executed by others.

RUYTER, Michael Fitz Adrian; a celebrated Dutch admiral, born at Flushing in 1607. He entered young into the naval service of his country, and rose from the situation of cabin-boy to that of captain, in 1635. He was sent, in 1641, to the assistance of the Portuguese, who had thrown off the yoke of Spain; on which occasion he was appointed rear-admiral; and, two years, he was employed against the Barbary corsairs. In the war between the Dutch and English, which commenced in 1652, Ruyter repeatedly distinguished himself, especially in the terrible battle fought in February, 1653, near the mouth of the Channel, when Blake (q. v.) commanded the English, and Tromp (q. v.)

and Ruyter the Dutch. He afterwards served against the Portuguese, the Swedes, and the Algerines, previously to the naval warfare between England and Holland, in the reign of Charles II. He commanded in the great battle fought in the Downs, in June, 1666, against prince Rupert (q. v.) and the duke of Albemarle (see *Monk*); and, in the following year, he insulted the English by his memorable expedition up the Thames, when he destroyed Upnor castle, and burnt some ships at Chatham. He was admiral of the Dutch fleet at the battle of Solebay in 1672, and signalized his skill and courage on several other occasions. He died in the port of Syracuse, April 29, 1676, in consequence of a wound received in an engagement with the French, a few days before, off Messina. His body was carried to Amsterdam, where the states-general erected a monument to his memory.

RYE *(secale cereale)*; a species of grain, generally considered, in temperate climates, next in value to wheat. It is a grass, from four to six feet high, with a fibrous annual root, producing one or several slender culms, which are provided at their articulations with linear and smooth leaves; the flowers are greenish, disposed in a terminal simple compressed spike, four or five inches in length. It is supposed to have been brought originally from the Levant, but has been cultivated in Europe from a very ancient period. Of all domestic plants, it has been the least altered by cultivation, and no permanent variety has been produced. It is the only species of the genus. Rye succeeds better in cold climates than wheat, grows in a greater variety of soils, resists severe frosts better, and arrives at maturity sooner. All soils will produce rye, provided they are not too moist; and many barren lands, which are unsuitable for the cultivation of wheat, may be sown with this grain to advantage. The time of sowing is earlier than with any other grain. It does not require so much attention during its growth as wheat, and the ripening varies according as the season is more or less warm and favourable, from the first of July to the last of the month; but, in general, it precedes wheat by fifteen or twenty days.. In some countries, it is customary to sow in March; but it rarely produces so well as when sown before the setting in of the winter. In many places, it is cultivated only for fodder, which is an excellent plan, as cattle are often in want of green food in the early spring. Rye is the principal sustenance in the greater part of the north of Europe, and, after wheat, nourishes the greatest portion of the population of that continent. Even in more than half of France, rye bread, either pure or mixed with wheat in equal proportions, is the only kind to be procured. Rye bread is not so nutritious as wheat, but has more flavour. The farina, or meal, differs from that of the latter in containing a much smaller proportion of gluten. In the north, the greater part of the ardent spirits is distilled from rye. The straw is long, flexible, and does not rot so easily as that of other grain; it is used by brick-makers and collar-manufacturers, and is considered an excellent material for the thatching of cottages and barns. Rye is but little cultivated in Great Britain. For spurred rye, see *Ergot*.

RYE; a borough-town of England, in the county of Sussex, and one of the cinque port towns. It is situated sixty-three miles south-east from London, on an eminence in the British channel, at the mouth of the river Rother. The commerce carried on here is chiefly in corn, coal, hops, oak-bark, timber, and wool; the herring and mackerel fisheries, in their season, afford much profitable employment. Population in 1831, 3,715. in 1841, 4.031.

RYE HOUSE PLOT. See *Russell, Lord William*, and *Sidney, Algernon*.

RYMER, THOMAS, of Eruldon or Earlston, in Berwickshire, otherwise called THOMAS THE RHYMER, was a poet or romancer, who flourished during the thirteenth century. To this day, the name of Thomas the Rhymer is popularly known in Scotland as a prophet; and it is only by a late discovery of the manuscript of a metrical romance called " Sir Tristram," that he has acquired a less exceptionable claim to remembrance. " The Prophecies of Thomas the Rhymer," were published, in Latin and English, at Edinburgh, in 1615, and have been repeatedly reprinted, copies of them being still to be found among the country people of Scotland. The romance of "Sir Tristram" was considered to be lost, till a copy of it was discovered among the Auchinleck manuscripts belonging to the library of the faculty of advocates, Edinburgh, and published, with introduction and notes, by Sir Walter Scott. The reader is referred to that edition for all that is to be learned regarding the work and its author. See also an article on the metrical romances of Sir Tristram in No. VII. of the 'Foreign Review.'

RYMER, THOMAS, a critic and antiquary, studied at Cambridge and at Gray's-inn. In 1678, he published Edgar, a Tragedy, and wrote a work entitled a View of the Tragedies of the last Age. Succeeding Shadwell, in 1692, as royal historiographer, he employed the opportunities afforded him by his office, to make a collection of public treaties, which he began to publish in 1704, under the title of *Fœdera, Conventiones, et cujuscunque Generis Acta publica, inter Reges Angliæ et alios Principes* (15 vols., folio, five more being added by Robert Sanderson). Rymer died in 1713.

RYSBRACH, JOHN MICHAEL, a statuary, was the son of a painter of Antwerp, in which city he was born in 1694. He went to England early in life, and derived considerable reputation and profit from the exercise of his art, of which Westminster abbey, and other cathedral churches, contain specimens, among which may be mentioned the monuments of Sir Isaac Newton and the duke of Marlborough; while others, and especially busts, enrich the best private collections, the heads of English worthies at Stowe, and in the Hermitage at Richmond, being of the number. His death took place in 1770.

RYSWICK; a village and castle situated in South Holland, a league from the Hague, where the peace of Ryswick was concluded September 20 and October 30, 1697. Louis XIV. had, in 1688, attacked the German empire in order to anticipate the league of Augsburg (the object of which was to set bounds to his conquests), and, at the same time, to frustrate the designs of William III., the stadtholder of Holland, to place himself on the British throne. When William landed in England (November 8, 1688), Louis declared war against Holland. He had already conquered the provinces on the Rhine, when the emperor Leopold and the states-general concluded a league against France (Vienna, May 12, 1689), to which Great Britain, Spain, and Savoy acceded. The war was carried on by France on land with great success. Marshal Luxembourg conquered the Spanish Netherlands, and Cattinat was victorious in Italy. But the landing of the French in Ireland, at the instigation of the deposed James II., proved unfortunate, and the French fleet under marshal Tourville was totally defeated by the English and Dutch, under the command of admiral Russell, near La Hogue, May 29, 1692. Since that time, the British naval power has always maintained an ascendency over the French. In the mean time, the duke of Vendome conquered Catalonia, and, August 7, 1695, also Barcelona. This, and the wish of Louis to dissolve the great European league, before the Spanish throne should become vacant, hastened the conclusion of a peace. Savoy had already concluded a separate peace with France, at Turin, August 29, 1696, and connected herself with that power. Upon this, Sweden mediated the general peace at the congress held at Ryswick, from May 9, 1697, until September 20 of the same year, when England, Spain, and Holland signed a treaty of peace with France. Louis XIV. restored all his conquests in Catalonia and the Spanish Netherlands, with the exception of eighty-two places, which had been taken by the process of *reunion* (see *Louis XIV.*), and acknowledged William III. as king of Great Britain and Ireland. The emperor and empire first signed the treaty of peace with France, October 30. Louis restored all the places which he had taken possession of in Germany by the process of *reunion* (see *Louis XIV.*), with the exception of those which were situated in Alsace, the sovereignty of which was conceded to him. He likewise retained the free city of Strasburg, which was taken in 1681. The clause of the fourth article of the treaty of Ryswick, according to which the Catholic religion, which had been introduced into the 1922 places now restored by the French, was to remain as it then stood, gave much dissatisfaction to the Protestants. France restored all her conquests. The navigation of the Rhine was declared free. See *Actes et Mémoires des Négociations de la Paix de Ryswik* (in 5 vols.)

S.

S; the nineteenth letter of the English alphabet, representing the hissing sound produced by emitting the breath between the roof of the mouth and the tip of the tongue placed just above the upper teeth, so that the air is driven through the teeth. From this circumstance, *s* has sometimes been reckoned among the linguals (as the tongue is essential in its pronunciation), sometimes among the dentals (as the teeth co-operate in producing the hissing sound). It is also one of the semi-vowels, as it can be pronounced without the assistance of a vowel, and the sound be prolonged indefinitely, like *l, m, n, r;* and Missula, in Martian, does not allow it to be a letter, but only a *sibilus* (hissing.) In pronouncing *s*, the breath may be driven with more or less violence over the end of the tongue; hence, in most languages, it has a twofold pronunciation—sharp, as in *sack, sin, this, thus;* and soft, as in *muse, wise.* The German *Sinn* (pronounced *zin*), and *Maus* (pronounced *mouse*), and the French *soit* and *base*, are also examples of these two sounds. In German, the *s* is soft at the beginning of a syllable, and sharp at the end or in the middle, while the contrary is usually the case in English. But in some parts of Germany (e. g. Holstein) *s* at the beginning is sharp. But the Germans have, besides, a peculiar character for the sharp *s*, being a contraction of *sz*, which, when words containing it, are printed with Roman characters, is changed into *ss*, as *Ross, Mass*—an inconvenient contrivance, as the *ss*, according to the common German rule, always gives the preceding vowel a short pronunciation, which is not the case with *sz*. It is a fundamental rule of etymology, that if a word begins with two or more consonants, the last of them only belongs to the root, though the others are not always useless additions. This rule is particularly true of words beginning with *s* followed by one or more consonants; e. g. *slime*, from *lime*, Latin *limus*, in German *Lehm* and *Leim*, which, instead of *slime*, has *Schleim* (pronounced *shlime*). The German *stumm*, for the English *dumb*, which, in German (formerly also written *damb*, now *dumm*), signifies *stupid* (one "who has not much to say for himself"), *slippery* (in German *schlüpfrig*), from the Latin *lubricus.* In both these cases, the *s* has an intensive power, which, in fact, it has very often, and of which numberless instances are found in all languages. But it is often put before words, apparently without this meaning; as in *Servus*, from the ancient Roman *Erus, Eruus.* The Greeks made *Scythians* of the *Kythi. Tinn* (in German *Zinn*) is of the same root with the Latin *stannum.* The Greek ὗς, ἥλιος, ὕλη and ὕδωρ became with the Latins *sus, sol, sylvia*, and *sudor.* This easy addition of *s* to words is also the cause of its playing so prominent a part in the declension of substantives and verbs in many, perhaps most languages. Notwithstanding the predominance of this letter in most languages, particularly in English,[*] the people of the South sea islands cannot pronounce it at all, and say, for instance, instead of *Ellis, Elliki.* The sounds of the letters *s, r, t, sh* and *th* (which, in fact, represents but a simple sound, though written with two characters in English, whilst the Spaniards have one, the *z*), are all produced by a very similar motion of the organs; and hence the frequent change of the *s* into the other letters. (See the articles *R* and *T.*) The sound *th* is the transition between *s* and *t*; hence the third person singular of the present tense, ending, in German, in *t*, ended formerly, in English, in *th*, and now in *s*; e. g. *has, hath* (Germ. *hat*);

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[*] If you hear two persons conversing in English at such a distance that nothing but the general sound of the discourse reaches your ear, they appear to be engaged in a continual hissing, from the frequent occurrence of the *s*. The constant repetition of this sound produces a very bad effect in English vocal music.

brings, bringeth (Germ. *bringet*). *S* is so nearly akin to *r*, that *Valerii, Furii, ara, carmen, lares*, and numerous other words, were originally written *Valesii, Fusii, asa, casmen, lases*. The Swedish and English *hare* is in German *Hase*. *S* often alternates with the sound *sh* (written in German *sch*); and some German tribes, particularly the Suabians, change the *s* regularly into *sch*, when it precedes another consonant: thus they say *bischt* and *hascht* (pronounced *bisht* and *hasht*) for *bist* and *hast;* and even in High German, *s*, at the beginning of a word, followed by another consonant, is generally pronounced *sh*; this, in fact, was long considered by many correct; but at present, we think, the weight of opinion is in favour of the simpler sound of *s*. It is a peculiarity of *s*, that it may be sounded before all the simple consonants—a circumstance which makes it so formidable a letter to lexicographers and encyclopædists. S signified seven, according to the verse:—

S vera septenos numeratos significabit.

Among the Greeks, σʹ signified 200, and ͵σ denoted 200,000; the sigma joined to the *tau*, i. e. στ, denoted 6. The samech of the Hebrew, ס, denoted 50, and with two points above, ס̈, it signified 50,000. S is the common abbreviation for *societas* and *socius* (fellow). S. S. stands for *sanctissimus ;* S. D. for *salutem dixit*; S. P. D. for *salutem plurimam dixit*; S. P. Q. R for the famous *senatus populusque Romanus*. S., in geography, stands for *south*; in music, for *solo* (alone), as T. for *tutti* (all). On French coins, *S* signifies Rheims. See *Abbreviations.*

SAADI. See *Sadi.*

SAALE; the name of several German rivers, the most important of which is that which rises in the Fichtelgebirge in Bavaria, and falls into the Elbe south of Barby. Several considerable places are situated on it, as Jena, Naumburg, Merseburg, Halle, &c. It is navigable to Halle, and it is intended to make it so to Naumburg.

SAAR LOUIS (in the time of the French revolution called *Sarrelibre*); the Prussian fortress nearest France, on the river Sarre, belonging to the government of Treves. Including the garrison, it has 7000 inhabitants. Vauban fortified the town for Louis XIV. In 1814, it was ceded to Prussia. Lon. 6° 50′ E.; lat. 49° 20′ N.

SABÆANS; the ancient name of the inhabitants of the modern Yemen, in Arabia. Their capital was Saba.

SABÆANS. See *Sabians.*

SABAISM (from the Hebrew *Zaba*, lord, from which God is called *Zebaoth*, Lord of the heavenly hosts, because the stars or powers of heaven are called the *hosts of God*); that religion which worships the heavenly bodies, especially the sun and moon. The connexion of these with the constant changes in nature, and with the condition of men, produced the idea of their divinity; and the actual or symbolical connexion of the heavenly bodies and certain animals and plants, as well as the powers of nature, which are active in them, invested the latter also with a divine character, and made them objects of worship to the adherents of Sabaism. The sexual relations of living creatures gave rise to the fundamental idea of generation, conception and production, which predominates in the Indian mythology, and became united with the doctrines of Sabaism; and thus the latter received that character which we find it to have in the mythology of Western Asia. Egypt, Arabia, and particularly the region bounded east by the Euphrates and Tigris, west by the Mediterranean, and north by the Black sea, were the countries where Sabaism prevailed in times previous to Christianity; and even the Hebrews often showed an inclination towards it. The religious history of the Chaldæans, Assyrians, Syrians, and tribes of Asia Minor, as given in Wagner's Contributions towards a general Mythology of the ancient World, in Gorres's History of Mythuses, in Creuzer's *Symbolik*, and in Baur's *Symbolik*, shows the justice of the reproaches which the prophets of the Old Testament heap on the sensual worship of these heathens.

SABBATARIANS; those Christians who keep the seventh day as others do Sunday; chiefly found among Baptists. They hold that the sabbath was established by divine authority, and changed from the seventh day to the first day of the week by human authority only.

SABBATH (a Hebrew word signifying *rest*) is the day appointed by the Mosaic law for a total cessation from labour, and for the service of God, in memory of the circumstance that God, having created the world in six days, rested on the seventh. For the manner in which the Jews kept it, and the awful consequences of neglecting it, we refer the reader to the Old Testament, Lev. xxvi. 34, 35; Neh. xiii. 16—18; Jer. xvii. 21; Ezek. xx. 16, 17; Numb. xv. 23—36. A law so strictly enjoined, and whose observance is of so public a character, was naturally kept by the Pharisees with the utmost strictness, in its outward forms, so that they reproached the Founder of Christianity, who taught that religion had its seat in the heart, and that God must be worshipped in spirit, with breaking the Sabbath when he healed the sick on that day. His rebuke of their hypocrisy is contained in John v. 16, and Matthew xii. 1 et seq.

Sabbath also signifies, in the Bible, the eternal rest of God ; also holy days in general. It likewise came to signify a week.

In the earliest times of Christianity, the law of the Sabbath, like other parts of the Jewish faith, could not be received into the new religion, except spiritualized and refined like the sacrifices and other ceremonies. Every day, the whole life of the Christian had become a Sabbath, destined for the service of God. St Paul explicitly treats the reverencing of certain days as invested with a holy character by a divine ordinance, as Jewish and unchristian, and as a return to the servitude of the law. The first communities assembled every day; e. g. the community of Jerusalem for common prayer, meditation on the Word, communion and love-feasts. Traces of these daily meetings are found even later. With the spread of Christianity, however, and the necessity of instructing a greater number, the appointment of a certain time for this service became necessary. This was not a departure from the spirituality of the new religion, but only an accommodation to the wants of mankind. In the same way, peculiar persons became priests, though all Christians had an equal sanctity of character, and the departure from the spirit of Christianity consisted only in assuming a peculiar spiritual character for the priests. The gradual adoption of forms and ideas from the Old Testament took place in the same way, in respect to the Sabbath, as in respect to the priesthood. When the Montanists intended to establish new fasts, assigned to fixed times, they were reminded of the Epistle to the Galatians; but Tertullian treated the censure of St Paul as attaching only to the celebration of Jewish festivals. (Tertullian, *De Jejuniis*, c. 14.) The weekly and yearly festivals of the Christians originated from the idea of following Christ, the crucified and the arisen; hence the festival of the resurrection, and the fasts preparatory thereto. In each week, the joyous festival was on Sunday, and the preparation for it was on Wednesday and Friday, the days of the Saviour's passion. This point of view is necessary for a right understanding of the early festivals. The desire of distinguishing the Christian from the Jewish observance, early gave rise to the celebration of Sunday, the first day of the week, instead of the Jewish Sabbath; the first trace of which is found in Acts xx. 7. This, however, is by no means conclusive, because the community, collected on the first day of the week, might easily have been assembled by the near departure of St Paul; and still less can be proved from 1 Corinth. xvi. 2. Another trace is in the Apocalypse, i. 10, as here we cannot suppose that by Lord's day is meant day of judgment. In the letter of Ignatius to the Magnesians (chap. ix.), allusion is made to the Sunday celebration, as the symbol of a new life, consecrated to the Lord, in contradistinction to the former Sabbath. Sunday was distinguished as a day of joy, so that none fasted on it; people prayed standing, and not kneeling, in allusion to Christ having raised fallen man. Wednesday and Friday, the latter particularly, were sacred to the memory of the Saviour's passion. Jewish-Christian communities, however, retained the celebration of the Sabbath, though they adopted also that of Sunday, and thus it became customary, in the Oriental church, to distinguish this day, also, by not fasting, and by praying in a standing posture: on the other hand, in the Western and particularly in the Roman church, in which the opposition to Judaism prevailed, the custom grew up of using the Sabbath particularly as a fast-day. (Tertullian, *De Jej.*, chap. 14.) And when, at a later period, the causes of this fasting on Saturday were lost, legends were invented to explain it, such as that Peter had fasted on this day to prepare himself for the disputation with Simon Magus. Tertullian speaks of this difference between the Oriental and Western churches with much moderation. The learned Hippolytus wrote, at the beginning of the third century, on this point of dispute. (Hieronymus, *Ep.* 72, *ad Vital.*) Constantine the Great made a law for the whole empire (321 A. D.), that Sunday should be kept as a day of rest in all cities and towns; but he allowed the country people to follow their work on that day. In the year 538 (A. D.), however, the council of Orleans prohibited country labour; but because there were still many Jews in Gaul, and the people fell into many superstitious uses in the celebration of the *new* Sabbath, in imitation of the practices of the Jews, the council declares that to hold it unlawful to travel with horses, cattle and carriages, to prepare food, or to do any thing necessary to the cleanliness and decency of houses or persons, savours more of Judaism than of Christianity.* The reformation, abolishing so many of the festivals, which had increased in the Roman church to an immense number, naturally elevated the character of those which it left, as Easter, Christmas, &c., and Sunday; but Sunday, though considered by the Lutherans as a proper day for religious service, was never regarded by them with that awe which was connected with its observance in the Old Testament. It is with them a day of rest and enjoyment, and many amusements are taken by Protestants on the European continent, during that day, which people there would think improper on week days appropriated for labour. Calvinism, which is altogether of a sterner character than Lutheranism, may have induced its adherents to observe Sunday more strictly; but even at Geneva, the Sunday evening is spent in various amusements, in visiting, dancing, playing foot-ball, &c., and the labours of husbandry are permitted in harvest on Sundays. The custom of calling Sunday *Sabbath* indicates the inclination to transfer the character of the Jewish Sabbath to the Christian Sunday. In fact, the Puritans, from whom it has descended, showed, in many respects, a decided inclination to the sternness of the Old Testament. (See *Sabbatarians.)* So much did they consider the Christian Sunday as a Jewish Sabbath, that a controversy has existed as to the time when the Christian Sabbath begins, many clergymen maintaining that it begins at sunset on Saturday; and some communities have acted on this view in their mode of observing it.

SABELLIANS. See *Sabellius.*

SABELLIUS, a Christian teacher at Ptolemais, a native of Africa, lived about 250, and is known as the founder of a sect, who considered the Son and Holy Ghost only as different revelations or manifestations of the Godhead, but not as separate persons. The Trinity, according to them, is but a threefold relation of God to the world. The *Logos* of John, called, by the church, the *Son*, was compared by Sabellius to a ray emitted from the sun, active in and through the man Jesus Christ, but by no means a separate existence from the one God. The Sabellians were suppressed in the fourth century by the orthodox church, but their views have always found adherents, and, even now, theologians exhibit conceptions of the Trinity, coinciding with that of Sabellius, in order to make it intelligible by reason.

SABIANS, or CHRISTIANS OF ST JOHN (likewise called *Nazoræans* and *Mendæans*); a sect which, according to tradition, has existed from the time of John the Baptist. The members at present are found chiefly in Persia, and consider their original country to have been on the Jordan, whence, they say, they were driven by the Mohammedans before the destruction of Jerusalem, and, being persecuted by the first caliphs, their temples destroyed, and their sacred books burnt, they fled to their present residence, and some also to India. Having been again persecuted, they submitted to the Nestorian bishop in Chaldæa, and allowed themselves to be called Christians, but have been separated from them for more than three hundred years. The question, whether they are really of Galilæan origin, and are derived from the disciples of John the Baptist, or whether they formed their doctrines from a mixture of the Jewish, Christian, and Persian religions, and, having chosen John as an object of meditation and reverence, afterwards supposed him to have been their founder, is difficult to decide. Tychsen has declared for the latter opinion; yet the argument seems stronger in favour of the former. In the middle of the seventeenth century, according to Ignatius a Jesu (*Narratio Originis*, &c., *Christianorum S. Joh.*, Rome, 1652), there were from twenty to twenty-five thousand families of them. Five religious books of these people are known to us: 1. The Divan, of which we have only the extracts given by Ignatius. This book is said to have been given by God to the angels several thousand years before the creation of the world, though Mohammed is alluded to in it. 2. The Book of Adam, consisting of revelations brought by angels, or æons, to Adam, and composed of eighty or ninety discourses, laudatory, didactic, hortatory and prophetic. 3. The Book of John, or Conversations of Angels. Specimens of this are given by Lorsbach. The bells and rosaries of the Christians are mentioned in it. 4. *Cholasteh*, which contains the means and conditions of salvation. 5. The Book of the Signs of the Zodiac, of an astrological character, and only known from the account of Abraham Ecchellensis. (*Eutychii Vindic.*, i. 3.) The language and alphabet of these books are altogether peculiar; the former is an Aramæan dialect, equally resembling the Syriac and Chaldean. Their religious doctrines stand in the same relation to those of Zoroaster, that Gnosticism and Manicheism do, except that they give to John the Baptist the elevated rank which the Gnosis gives to Christ. The latter and the Holy Ghost they look upon with the same contempt with which the Gnostics regarded the God of the Old Testament. Their system is a highly complicated doctrine of emanations, on which the influence of the Jewish cabala and of Mohammedanism is perceptible. The original being (like the endless time of the Zend-Avesta) is a divine æther (Ferha) of unspeakable splendour. Next to him is a female principle (Ajar). From these two proceeds Mana (the lord of the kingdom of light). Then follow numerous æons, or angels of light, and opposite to the kingdom of light is that of darkness, under Ur, with seven chief evil spirits, which inhabit the seven planets. Their theology ends with John the Baptist (Anusch), who came to win men, by baptism, for the kingdom of light. He was produced by a single kiss of his father Zachariah, and was married, but received his children out of the Jordan, one of the first elements of light in their theology. Mohammed is the last false prophet, after whom no other will appear. They despise Mahommedans more than Christians. The best part of their doctrine is their morals, founded on the repression of sensuality, as the only condition of virtue. The elect (they allow gradations of virtue) are forbidden to enjoy sensual pleasure, singing, dancing, &c.; yet matrimony is often praised. Matrimonial fidelity, careful education of their children, respect for the first born, abstinence from usury, &c., are inculcated. Their priests are divided into three orders. The priestly dignities are hereditary, descending to the eldest son. Baptism is their most solemn rite. It is the indispensable condition of the forgiveness of sin, and is administered to new-born children and adults. The baptism of the latter takes place at least once every year, during the great feast of baptism, which lasts five days. They have also a kind of *agape*, or love-feast. Polygamy is not prohibited even to priests. Among their laws, in which we also find some resembling the Jewish, is one which prohibits mourning for the dead; but prayers are offered up, sermons delivered, and alms given. Their antipathy for blue is remarkable. A pretty complete list of works relating to this sect is given in Nosselt's *Theolog. Litteratur* (§ 474). See Norberg, *De Relig. et Lingua Sabæorum*, in the 3d vol. of *Comm. Soc. Goth.* (1780); Walch, *De Sabæis* (4th vol. ibid., 1781); Norberg's *Codex Nasareus seu Liber Adami, Syriace transcriptus Latineque redditus* (t. i.—iii., 1815 and 1816); Tittman, *Meletemata Sacra* (Leipsic, 1816, p. 15 et seq.)

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* In the fourth volume of Blackstone's Commentaries, p. 63, the commentator says that the profanation of the Lord's day is vulgarly but *improperly*, called *Sabbath-breaking*, and is punished by the municipal law, by a fine of three shillings and four pence; and that, by the laws of England, no fair or market is allowed to be held on any Sunday, except the *four Sundays in harvest*, on pain of forfeiting the goods exposed for sale. The law, however, does not prohibit (the commentator adds), but rather *allows*, any *innocent recreation or amusement* on the Lord's day, *after service is over*. But it prohibits *work* on that day, or exposure of goods for sale, except mackerel, milk, meat, &c., under the penalty of five shillings. He considers Sunday as a *civil institution*, to be regulated by the municipal law.

SABINES (*Sabini*); an old people of Italy, probably the descendants of the Ausonians, and related to the aborigines. This numerous people, who founded many colonies, lived in the Apennines, principally occupied with the care of herds. Horace has celebrated their honesty, modesty and simplicity of manners. Their country, to the west, was separated from Etruria by the Tiber; towards the south, by the river Anio (Teverone), from Latium; and towards the north, by the river Nar, from Umbria: towards the east dwelt the Sabine colonies of the Vestini and Marrucini, who separated it from the Adriatic sea: it therefore embraced the principal part of the mountainous country of the Apennines. The soil is very fertile, and rich in pasturage. The productions are oil, fruits and wines, besides acorns in abundance.

SABINES, RAPE OF THE. See *Romulus*.

SABLE. See *Weasel*.

SACBUT; a bass wind instrument, resembling the trumpet, and so contrived as to be capable of being drawn out to different lengths, according to the acuteness and gravity of the scale required. The sacbut is usually about eight feet long, and, when extended to its full length, about fifteen. There are, however, sacbuts of different sizes, to execute different parts, particularly a small one, called by the Italians *trombone piccolo*, and by the Germans *kleine Alte-Posaune*, proper for the countertenor. Respecting the sacbut of the ancient Hebrews, commentators have differed much. Indeed, scarce any ancient instrument has been heard of, for which the sacbut or the psaltery has not furnished a name.

SACCHARINE. See *Fermentation*, and *Sugar*.

SACCHINI, ANTHONY MARY GASPARD, was born at Naples, in 1735, and studied music under Durante. After being employed in Rome, Venice, and several other cities of Italy, he went to London, where he composed *Montezuma*, *Perseus*, and the *Cid*. He was engaged for the opera in Paris, in 1782, where his *Œdipe à Colonne* procured him great fame at the time of the quarrel between the Gluckists and Piccinists. He died in 1786, leaving fifty operas. His bust stands in the Pantheon at Rome, next to Raphael's.

SACHEM. In North America, this is the name given by some of the Indian tribes to their chiefs.—*Sagamore* is a word of similar import among the Indians.

SACHEVERELL, HENRY, D.D., an English divine of the establishment, exalted into temporary importance by the spirit of party, was educated at Oxford. In 1705, he was appointed preacher of St Saviour's, Southwark. While in this station, he preached his two famous sermons, in 1709, the object of which was to rouse apprehensions for the safety of the church, and to excite hostility against the dissenters. Being impeached in the house of commons, he was brought to trial in February, 1710, and sentenced to be suspended from preaching for three years. This prosecution, however, excited such a spirit in the high church party, that it ultimately overthrew the ministry (see *Bolingbroke*, and *Harley*), and established the fortune of doctor Sacheverell, who, during his suspension, made a sort of triumphal progress through the kingdom. The same month that his suspension terminated, he was appointed to the valuable rectory of St Andrew, Holborn, by queen Anne; and such was his reputation, that the copy-right of the first sermon which he afterwards was allowed to preach, sold for £100. He had also sufficient interest with the new ministry to provide handsomely for a brother. Little was heard of him after this party ebullition subsided, except by his numerous squabbles with his parishioners. His abilities, even according to writers on his own side, were contemptible; and, if we may credit doctor Swift, he was despised by the ministry whom his notoriety so much contributed to support. He died in 1724.

SACHS, Hans, the most distinguished master-singer of Germany, in the sixteenth century, was born at Nuremberg in 1494, and was by trade a shoemaker. He followed his business and made verses with equal assiduity. He became a Protestant, and died Jan. 19, 1576. His complete works appeared in 1570 et seq., in five folio volumes., in Nuremberg; also in 1588, ibid.; and at Kempton in five 4to. vols. (1612—1616). Büsching published a selection of them in 1828 (Nuremberg, in 6 vols.). He possessed a fruitful genius, and, notwithstanding the rudeness of his language, his poems are distinguished for *naïveté*, feeling, invention, wit, and striking description.

SACHSENSPIEGEL (*Mirror of the Saxons*); a private collection of legal precepts and legal customs, which had the force of law in the middle ages in Germany, especially in the north of Germany. A Saxon nobleman (Epko von Repkau, or Eyke von Repgow) made this collection in 1215 et seq. It enjoyed great authority even in foreign countries, as Poland, Denmark, &c., though the pope put many obstacles in its way, and though it was but a private collection. It is written in the old Saxon dialect, and is of much value, both for the lawyer and the philologist. The study of it has been revived, of late, in Germany, and Homeyer published a critical edition of it in Berlin (1827).

SACK (*secco*, Spanish; *sec*, French; *dry*); a general name for the different sorts of dry wine, more especially the Spanish, which were first extensively used in England in the sixteenth century. Thus we find the writers of that time speaking of "sherry sack," meaning Sherry, and "Canary sack," for the dry wines of the Canaries. Henderson gives some curious information on this point, on which there has been a good deal of confusion and dispute. (*Ancient and Modern Wines*, p. 308, seq.) The practice of putting sugar into wine, which we often find alluded to in Shakspeare and other writers, was not confined to the sacks; the English, at that time, sweetened all their wines.

SACKVILLE, Thomas, (lord Buckhurst and earl of Dorset,) an accomplished statesman and poet, was the son of Sir Richard Sackville of Buckhurst. in the parish of Witham, in Sussex, where he was born about 1527. He was first of the university of Oxford, but removed to Cambridge, and afterwards became a student of the Inner Temple. At both universities he was distinguished for his performances in Latin and English poetry, and in the Temple he wrote his tragedy of Gorboduc. Of a poem intended to comprehend a view of the illustrious but unfortunate characters in English history, entitled the Mirror of Magistrates, he finished only a poetical preface, and one legend on the life of the duke of Buckingham. He was member in the two first parliaments of Elizabeth, after which he travelled. On the death of his father, in 1566, he succeeded to a large inheritance, and was soon after raised to the peerage by the title of baron Buckhurst. He was then imprisoned owing to the influence of the favourite, Leicester, in consequence of a report in disfavour of the latter, when sent on an embassy of inquiry into his conduct in Holland. In 1598, he was joined with Burleigh, in negociations for peace with Spain, and signed the treaty which followed with the states-general. On the death of that minister, he succeeded him as lord high treasurer. In this situation he was instrumental in discovering the dangerous projects of the earl of Essex, at whose trial he presided as high-steward, in which office he conducted himself with great prudence and humanity. On the accession of James I., his post of treasurer was confirmed to him, and in 1604, he was created earl of Dorset. He died suddenly, at the council table, in April, 1608, at an advanced age. This statesman ranks among the most prudent and able of the ministers of Elizabeth, and was a good speaker, and a still better writer. As a poet, he was the first who approached to perfection in the English heroic stanza, and gave the first example of regular tragedy in blank verse. His tragedy of Gorboduc, or, as entitled when printed in 1671, the Tragedie of Ferrex and Porrex, is a sanguinary story from early British history, composed with little pathos or attention to dramatic rules, but with considerable force of poetical conception and moral sentiment. The language is also pure and perspicuous, and free from the turgidity which soon after prevailed.

SACKVILLE, Charles, sixth earl of Dorset and Middlesex, was born Jan. 24, 1637. He received his education under a private tutor, and, after making the tour of Italy, was chosen member of the first parliament which assembled after the restoration. He made a great figure as a speaker, but declined all public employment, being wholly engrossed with gallantry and pleasure. He, however, served as a volunteer in the first Dutch war, in 1665, and, the night before the engagement, composed his celebrated song of "To all you ladies now at land," which is esteemed one of the happiest of his productions. He succeeded to the estate of his uncle, James Cranfield, earl of Middlesex, in 1674, and, in 1675, to his title by creation. In 1677, on the death of his father, he also succeeded him in his estate and the title of Dorset. He utterly disliked and discountenanced the violent measures of James II., and early engaged for the Prince of Orange, who made him lord chamberlain of the household. In 1698, on the decline of his health, he retired from public affairs, and died January 19, 1705—6, leaving a son and a daughter, the first of whom was created duke of Dorset in 1720. Lord Dorset wrote several small poems, which are included in Chalmers's collection; but they are not numerous enough to make a volume of themselves. He was still more celebrated as a patron of poets and of men of wit, who in their turn, have been very copious in their panygeric; and Prior, Dryden, Congreve, and Addison, all bear testimony to his merit. He was a very able critic; and Butler owed it to him that the court relished his Hudibras. His own brief productions are those of a man of wit, gay and airy.

SACKVILLE, George (viscount Sackville), was the third son of the first duke of Dorset, and was born in 1716. He was educated at Trinity college, Dublin, served with reputation at the battles of Fontenoy and Dettingen, and, in 1758, had attained the rank of lieutenant-general. The following year he commanded the British cavalry at the battle of Minden, under prince Ferdinand of Brunswick, whose orders to advance with his troops, during the engagement, he disobeyed, either from cowardice or misapprehension. His behaviour was generally attributed at home to the former cause, and he was tried by a court-martial, convicted of dereliction of duty, and sentenced to be dismissed from the service. Under the administration of lord Bute, he was restored to favour. In 1775, he was appointed colonial secretary of state, and held that office during the progress of the war with America. On relinquishing his post in 1782, he was created viscount. For a considerable part of his life, he was called lord George Germaine, having taken that name on succeeding to an estate left him by lady Elizabeth Germaine, who died in 1769. See *Junius.*

SACLACTIC ACID. See *Mucic Acid.*

SACO; a river of America, which rises in the White mountains, and runs south-east into the Atlantic, below Saco, in Maine. It is 160 miles long, and has falls of seventy-two feet at Hiram, of twenty feet at Lymington, of thirty feet at Buxton, and of forty-two feet at Saco. To Saco, six miles from its mouth, it is navigable.

SACO; a post-town and port of entry in York county, Maine, United States, at the falls on Saco river. It is fifteen miles south-west of Portland. Population in 1830, 3219. The falls at this place are used in working saw-mills and factories.

SACRAMENT (Latin, *sacramentum;* the assumption of an obligation, and oath). This word received a religious sense, in the Christian church, from its having been used in the vulgate, to translate the Greek *μυστηριον.* Among the early Latin ecclesiastical writers, *sacramentum*, therefore, signifies a mystery, a symbolical religious ceremony; but first acquired the peculiar sense which it now has in the Roman Catholic church, denoting seven particular religious rites. The Catholic church considers a sacrament as a visible token, ordained by Christ, by means of which an invisible grace is communicated to Christians. The seven Roman sacraments, as confirmed by the council of Trent (sess. vii.), are 1. Baptism (Matthew xxviii, 19); 2. Confirmation (Acts viii, 14—21, xix, 1—4); 3. the Eucharist (see *Lord's Supper*); 4. penance (q. v.); 5. extreme unction (James v, 14, 15); 6. orders (Acts vi, 1—7; xiii, 1—4; xiv, 20—24; and 2 Timothy i, 6 and 7); and marriage, the sacred and indissoluble nature of which is conceived to be taught in Matthew v, 31, 32; xix, 1—10; Mark x, 2—13; Luke xvi, 18; Romans vii, 2—4; 1 Corinthians vii, 10 and 11. The Greek church agrees with the Roman church in the doctrine of the sacraments. (See *Greek Church.*) The Protestants, in general, acknowledge but two sacraments, baptism and the Lord's supper, considering a sacrament to be a festival instituted by Christ, by which he who partakes of it worthily, participates in the influences of divine grace through sensible means and signs. The different views of the early reformers on the subject of the eucharist are stated in the articles *Carlstadt, Zuinglius, Lord's Supper.* (See also, *Reformed Church.*) Luther and Melanchthon at first acknowledged penance or absolution as a sacrament, but afterwards ranked it only as a preparation for the Lord's supper. The Quakers consider the sacraments as of little importance. See *Quakers.*

SACRIFICES. See *Offerings.*

SACRILEGE; the alienating to laymen, or common purposes, what was given to religious persons and pious uses. The idea that sacrilege is to be punished with peculiar severity, as a profanation of things sacred, or a direct indignity to God, was controverted even in the chamber of Catholic France, in the debates respecting the bill *sur le sacrilège*, in 1825. See St Edme's work, *La Législation historique du Sacrilège chez tous les Peuples* (Paris, 1825). Church robbery, or the taking things out of a holy place, is sacrilege, and, by the common law, was punished with more severity than other thefts, for the benefit of clergy (q. v.) was denied to the offender, but it is now put by statute on a footing with other felonies.

SACS. See *Indians, American.*

SADDUCEES; one of the four principal sects of the Jews, the founder of whom was Sadoc, a Jewish rabbi, who lived about 200 years B. C. The doctrines inculcated by his master, Antigonus, that we ought to practise virtue, not for the sake of reward, but solely on account of its own intrinsic excellence, led him to maintain that there would be neither rewards nor punishments in another life. His adherents, therefore, denied the resurrection and the immortality of the soul; believed neither in angels nor spirits; but were very strict in their morals; so that Christ, notwithstanding the reproach that they did not understand the Scriptures, did not censure them on account of their morals. They succeeded to the highest dignities and offices, and even to the high priesthood. This sect still exists among the Caraites. (q. v.)

SADI, or SAADI (Sheik Moslehedin Sadi el Shirazi), of Shiraz, one of the most celebrated lyric and moral poets of Persia, was born at Shiraz, in the year of the Hegira 571 (A. D. 1175), and died in the 116th year of his age (A. D. 1292.) As his parents were poor, he was educated at the court of Abubeker, and received great favours from different monarchs of Persia. He spent thirty years in travelling, and did not begin to write until his ninetieth year. He completed his works, which are extensive, in the last twelve years of his life. The Persians esteem him exceedingly, on account of his golden maxims, which they consider as a treasure of true wisdom, and also on account of his pure, elegant, and simple style. Of his works, we possess, 1. a collection (Divan) of lyric poems in the Arabic and Persian languages, consisting partly of amatory poems, and partly of exhortations to partake in the joys of life, intermingled with serious reflections; 2. a moral work, under the title of *Gulistan* (the Garden of Roses), composed both of prose and verse, in eight books, with the following titles: "on the minds and morals of kings;" "on the minds and morals of dervises;" "on the quiet and happiness of contentment;" "on the importance of silence;" "on love and youth;" "on weakness and old age;" "on the education of children and good morals;" and, lastly, "on the art of associating with men:" 3. a work in verse, called *Bostan* (the Orchard), containing a collection of histories, fables and moral instructions; 4. and, lastly, a collection of moral sentences, also in verse, under the title of *Pendnahmeh*, or *Molamaat*. The complete works of Sadi have been published in Persian at Calcutta, in two large quarto volumes. Gentius has also published *Gulistan*, the finest of his poems, in Persian and Latin; and Dumoulin the same poem in Persian and English (Calcutta, 1823). Doctor Bernard Dorn has translated Three Pleasure-Walks from Saadi's Garden of Roses (Hamburg, 1827). The *Pendnahmeh* has been published separately in the East Indies and England, in the Persian and English languages. There are also translations of many of his lyric poems, by Ouseley and others; and the *Bostan* and *Gulistan* have been translated into a variety of languages. (See *Persian Literature.*) Franklin and Morier, in their travels, have described his monument, which is situated about nine miles to the north-east of Shiraz.

SAFE-CONDUCT; a security granted by the sovereign authority, or persons delegated by it, to strangers, or other persons, to enable them to repair to, and return from a certain place undisturbed. In most of these cases, passports have now taken the place of special safe-conducts. Sometimes the safe-conduct is given to persons accused, to secure them against harm, when summoned to an examination. Thus the emperor Sigismund gave a safe-conduct to Huss, when he was cited to appear before the council at Constance (in this case, however, the safe-conduct was violated, and Huss was burnt, because the clergy persuaded the emperor that he need not keep his word towards a heretic); and Charles V. gave a safe-conduct to Luther, to induce him to appear at Worms. Judges sometimes give safe-conducts to delinquents, to enable them to act in their affairs. In Germany, a safe-conduct is sometimes granted, to give a person accused an opportunity to defend himself without experiencing the usual disadvantages of a prosecution; and a safe-conduct is granted in criminal cases, "until something penal is proved against the accused;" e. g. If the accused thinks he can make out an *alibi*, or that the act with which he is charged is not punishable, &c.

SAFETY-LAMP. See *Damps*.

SAFFRON. The true saffron (*crocus sativus*) is a low, ornamental plant, with grass-like leaves, and large lily-shaped flowers, inhabiting the European continent, and frequently cultivated for the sake of the yellow stigmas, which were formerly much employed in medicine, domestic economy, and the arts; now they are used by painters and dyers; also in cookery and confectionary. The bulbs are planted in rows six inches apart, and three from bulb to bulb, in a well pulverized soil, not poor, nor a very stiff clay, and in the month of July. The flowers are collected in September, and the yellow stigmas, and part of the style, are picked out and dried on a kiln, between layers of paper, and under the pressure of a thick board, to form the mass into cakes. Two pounds of dried cake is the average crop of an acre, after the first planting, and twenty-four pounds for the two next years. After the third crop, the roots are taken up, divided, and transplanted. Other species of crocus are often cultivated in gardens, on account of the brilliancy of their flowers, and the early season at which they flower. The term *saffron* is often applied to the *carthamus tinctorius*, a large thistle-like plant, with orange-coloured flowers, belonging to the family *compositæ*. The root is perennial, but the stem herbaceous. It is said to have been originally brought from the East, but is now naturalized in many parts of Europe, and is, besides, extensively cultivated. The flowers are used by the Chinese, to communicate some of the fine rose, scarlet, purple, and violet colours to their silks; for this purpose the flowers are thrown into an infusion of some alkali, and left to macerate; the colours are afterwards drawn out by the addition of lemon juice in various proportions, or of any other vegetable acid. Great quantities of these flowers are annually imported into Britain, for dyeing and painting. In Spain, they are used to colour soups, olives, and other dishes. The Jews in Poland are remarkably fond of it, and mix it with their bread and most of their viands. In Germany, it is cultivated in a light soil, well pulverized, and is sown in rows about eighteen inches apart, and afterwards thinned, so as to leave three or four inches between the plants. In September the plants begin to flower, and the field is then gone over once a week for six or seven weeks, to gather the expanded florets, which are dried in a kiln, in the same manner as true saffron. The *carthamus* is sometimes used for culinary purposes, under the impression that it is the true saffron, but, if in too great quantities, communicates a purgative quality.

SAGA. See *Scandinavian Literature*.

SAGAMORE. See *Sachem*.

SAGE (*salvia*). This genus differs from the majority of labiate plants in having but two stamens, instead of four. More than two hundred species are known, which are herbaceous or shrubby, with opposite leaves, and flowers also opposite, or, more frequently, verticillate, forming spikes at the extremities of the stems and branches. The garden sage (*S. officinalis*) was formerly in great repute as a sudorific, aromatic, astringent, and antiseptic. It possesses stimulant properties in a high degree, is tonic and stomachic; the odour is strong, aromatic, and agreeable; the taste bitter, pungent, and somewhat resembling camphor, which substance, indeed, is contained in the plant. The leaves are often employed in seasoning dishes, especially in the south of Europe. The Chinese esteem this plant very highly, and use it as a tonic for strengthening the stomach, often giving it the preference to their own tea.

SAGHALIEN; a large island, or peninsula, on the eastern coast of Asia; lon. 142° to 145° east; lat. 45° to 54° north. The northern part belongs to the Chinese, the southern to the Japanese empire. It is uncertain whether it is connected with the continent by a low and narrow neck of land, or is entirely separated from it. It is inhabited by a few barbarous tribes.

SAGO PALM (*sagus Rumphii*); a low species of palm, found wild in the East Indies. The trunk is upright, and is crowned at the summit with a tuft of pinnated leaves, composed of very numerous, long, narrow, pointed, smooth leaflets. The fruit is about as large as a pullet's egg, covered with shining scales, and is edible. The trunk contains a farinaceous pith, which is a very wholesome aliment: sago is made from it, as from that of most other palms. For this purpose, the pith is taken out, bruised in a mortar, and put into a cloth or strainer: it is then held over a trough, and, water being poured in, the pith is washed through the cloth into the trough below: the water being then drawn off, the sago is taken out and dried for use or transportation. It is highly esteemed as an article of food. The preparation of sago, under different forms, constitutes a principal source of employment to the inhabitants of many parts of the coast of Malabar, and of several of the East India islands. Sago is granulated in a manner somewhat similar to that adopted in the preparation of tapioca (see *Manioc*), and in this state enters into commerce.

SAGUENAY; a river of Canada, which flows into the St Lawrence in lat. 48° N., lon. 69° 40′ W. Its course is south-east. At its mouth it is about a mile wide, but higher up it has two or three times that breadth, and is deep enough for the largest ships. Its length is about 350 miles, and the tide flows up about seventy miles. Its current is remarkably rapid. The harbour of Tadousac, at its mouth, is sufficient to contain twenty-five ships of the line, affords good anchorage, and is well protected.

SAGUNTUM; a celebrated city in Hispania Tarraconensis, near the river Turius (Murviedro). It was in alliance with Rome, and therefore attacked by Hannibal, 219 years B. C., and conquered after an obstinate siege; upon which the second Punic war commenced. The city of Murviedro (*Muri veteres*) now stands upon the same spot. In the war between Spain and France, the army of Valentia, under Blake, was defeated here by Suchet, October 25, 1811; in consequence of which the fort of Saguntum capitulated.

SAHARA, ZAARA, OR THE GREAT DESERT; an immense tract of territory situated between the states of Barbary and the countries watered by the Niger, between lat. 16° and 30° N., and lon. 29°. E. and 16° W.; superficial area, 1,800,000 square miles. In its greatest length, it extends nearly across Africa, from the Atlantic to the Nile, 45 degrees of longitude, or about 3000 miles: its breadth is about 15 degrees, or 1000 miles. But the name is usually limited to the main body of the desert, which lies to the west of Fezzan and Cassina, extending through about thirty degrees of longitude. It is the largest desert on the globe. A great part of the surface consists of a dead level. In some parts it is covered with small sharp stones; in some places the surface is diversified by ravines, rocks, and eminences covered with shrubs; other parts are composed of moving sand, which, when blown by the wind, sometimes produces the most terrible effects, and whole caravans have been found buried beneath it. This vast tract is occasionally diversified by oases, in which a supply of water affords support to a certain number of inhabitants, or, in some, merely furnishes springs, for the refreshment of travellers. These places are inhabited by nomadic Arabs. Lions, panthers, enormous serpents, ostriches, and gazelles are found here. This desert is traversed, for purposes of commerce, by means of the camel, by caravans sometimes consisting of 2000 persons. (See *Africa.*) These caravans convey from Northern Africa salt, cloths, and various kinds of European goods, receiving in return, gold, ivory, and slaves. The coast of Sahara, extending along the desert, is, for the most part, rocky, dangerous, and destitute of harbours. Denham, Clapperton, and Caillié, are among the latest travellers who who have crossed this desert.

SAIGON; a city of Cochin-China, on the Dongnay, 56 miles from its mouth, in lat. 10° 50′ N., lon. 106° 42′ E., with a population of 150,000 souls, of whom 10,000 are Chinese. The largest vessels can ascend the river to Saigon, which has a safe and convenient harbour. The streets are regular, but filthy, and the houses are generally low, of wood, and thatched with straw. The citadel, which contains the royal palace and barracks, is situated on an elevation sixty feet above the river, and is strongly fortified. Mr White, who visited it in 1819, saw 250 pieces of cannon here. There are also, an extensive naval arsenal, a cannon foundery, with a great number of temples, several pagodas, and a Christian church in Saigon. Previously to 1800, the commerce was monopolized by the Portuguese; but other European nations, the Chinese, and Americans, have since engaged in it. Rice, betel nut, sugar, pepper, cinnamon, silk, cotton, ivory, gold, and silver, are the chief articles of export. See *Cochin-China.*

SAIL. See *Ship.*

SAILING. See *Navigation.*

SAINT. *Names of persons and places beginning with this prefix, and not given here, will be found under the head of the word following it.*

SAINTS (from the Latin *sanctus*, holy), in its widest sense is used by Catholics and Protestants to signify the pious, who in this world strictly obey the commands of God, or enjoy, in the eternal world, that bliss which is the reward of such a life on earth. In a narrower and more usual sense, the word *saint* signifies certain individuals whose lives were deemed so eminently pious, that the Greek and Roman Catholic churches have authorized the rendering of public worship to them: these two churches, however, by no means acknowledge, in all cases, the same saints. The doctrine of saints, and the ideas and usages which grew out of it; their worship and invocation; the power which they are considered to possess of interceding for men with God, and of working miracles; their peculiar patronage of particular individuals, &c.,—form one of the main points of difference between the Protestants and the adherents of the above mentioned churches. The *Dictionnaire de Théologie*, (Toulouse, 1817,) a work exhibiting the Catholic faith, and defending it against Protestantism, speaks in the following manner of *saints* in the narrower sense of the word: "The name of saint is given to a person who is not only much attached to the worship of the true God, but who is exempt from every considerable vice, and who practises the Christian virtues in an exalted degree; and as the bliss of heaven is the certain reward of such a life, we often understand by *saints* those who enjoy eternal felicity. When the church is convinced that an individual has led such a holy and pure life, when God has deigned to attest it by miracles, it places him among the number of saints by a decree of canonization, and authorises the faithful to render him public worship. (See *Canonization.*) The church, however, does not intend to intimate thereby that such an individual has been exempt from every weakness of humanity, and that he has never sinned; human frailty does not admit of this perfection."

The article from which this definition is taken, treats the worship and invocation of saints, and their intercession, as something essential to the Catholic faith; while there are other Catholic writers who explicitly say, that the church has made the worship of saints, not a matter of doctrine, but simply of discipline, as the Catholic writer of the article *Heilige*, in the German Conversations-Lexicon. Without further statement of the views of Catholic writers, among whom, as may be imagined, a great many shades of opinion prevail on this subject, from the enormous absurdity—by no means unfrequently maintained—that saints are persons who have led a life so much more virtuous than was necessary to obtain happiness in another state, that this surplus of virtue is made operative by their intercession for the salvation of others, down to the view of the German writer just mentioned, we refer the reader to the decree of the council of Trent, as the acknowledged orthodox basis of the veneration of saints, images, relics, &c. It is explicitly stated there, that Jesus Christ is the only Redeemer and Saviour; but that it is "good and useful suppliantly to invoke saints, and to resort to their prayers and assistance;" that they pray for men; that their bodies are to be venerated by the faithful; and that the images of Christ, of the Virgin Mother of God, and of other saints, are to be also venerated; "not that it is believed that any divinity or power resides in them, on account of which they are to be worshipped, or that any benefit is to be sought from them, or any confidence placed in images, as was done formerly by the Gentiles, who fixed their hope in idols; but that we honour the subjects represented, when we kiss their images, or uncover our heads before them," &c. This is accompanied with the usual anathema against all who teach or profess contrary doctrines. But so much depends upon the true understanding of the decrees upon these points, and so easy is it to put various interpretations on human language, that we shall give that part of the decree of the twenty-fifth session of the council of Trent, which relates to the subject of this article in the original.* The Catholic theology has two different words for the veneration of saints, and that of God and the Mediator, the former being called *dulia*, the latter *latria*, and the church must watch that the former does not degenerate into the latter. How much the worship of saints, and the great variety of human characters which thus became objects of veneration, contributed to the diffusion of Christianity in the middle ages; how it brought Christianity into connexion with the fine arts, by affording the most copious store of religious subjects to the genius of artists; and how the worship of the Virgin Mary became a very active element in the religion of the middle ages, as it still is a prominent feature in the Roman Catholic faith—would be highly interesting to consider; but our limits will not allow it.

The Catholics regard their notions on the subject of saints as supported by different parts of the Bible, e. g. Timothy ii. 12, various passages in the Apocalypse, Jeremiah xv. 1 and 5, Luke xvi. 9, and the writings of many of the early fathers, as Origen, who wrote in the third century (1 *de Orat.*, n. 11, and several other places of the same character): for the invocation of the saints, they refer chiefly to Genesis xlviii. 16, John xii. 26, xvii. 20, and many passages in early Christian writers. The Protestants object to the whole doctrine, and allege that even Christ himself said, "There is none good but one, that is, God;" that not only is the idea of saints, as intercessors, no where contained in the Bible, but that it originated centuries after the establishment of Christianity; that it is against the chief doctrine of Christianity, which declares all men to be sinners, and to be saved only by Christ; that it is impious to imagine God like an earthly king, who is influenced by the suggestions of those around him; that Christ's mediation is founded either on an atonement, which is the more general opinion, or on his bringing the gospel to men; and that it can be clearly proved that many saints, now so considered, never existed, but were the offspring of ignorance, mistaking, e. g. a Greek word in a church inscription for the name of the saint to whom the church was dedicated, and that others were of very equivocal characters;* that fraud evidently sometimes had part in the creation of saints; and that a doctrine, which has led, for centuries, and so universally, to such gross superstitions, as Catholics themselves admit, have often arisen from the doctrine of saints, notwithstanding these superstitions are not supported by the council of Trent, must be highly dangerous; for the essential question with regard to every law and doctrine, is not—For what was it intended? but How does it operate? If Protestants do not see that the Bible contains any divine command which could fairly lead to the invocation of saints, and to the supposition of their intercession for men with God, still less do they find any ground for the veneration of relics. The doctrine of saints seems to us to have essentially originated from the virtues displayed by the martyrs. Heroism in suffering always remained the most common ground of saintship, as, in fact, is natural, since the great Prototype of Christianity became such by his sufferings. When the gospel had filled the heart of believers with the hope of an eternal life of felicity, death soon came to be considered as affording occasion for joy rather than sorrow to the friends of the departed. Cyprian pronounces this opinion distinctly in his *De Mortalitate.* The anniversaries of the death of friends were celebrated by partaking of the Lord's supper, and by a gift laid on the altar, in return for which the prayer for the soul of the deceased was introduced into the prayers which preceded the communion. If this was the case with all, it was naturally still more so with the martyrs whose death was their glory. Hence the anniversaries of their suffering were called the *dies natales, natalitia martyrum*, *γενεθλια των μαρτυρων*. We find in Eusebius (lib. iv. 15) the report of the martyrdom of bishop Polycarp, by the community of Smyrna. They say there, in answer to the reproaches of the heathens, "They (the heathen) do not know that we can never forsake that Christ, who has suffered for all the saved, nor can worship any one besides. Him we worship, as the Son of God; but the martyrs we love, as they deserve, on account of their unparalleled love of their King and Lord," &c. They continue: "We took up his bones, which are more precious than gold and jewels, and laid them down in the proper place; and God will grant, that we may assemble there in joy and gladness, and celebrate the festival of his martyrdom, in memory of the departed champions, and to exercise and prepare those who are still awaiting the struggle." In this passage we see, already, the beginning of the veneration of relics. By degrees, the veneration of martyrs and the estimation of their relics increased; and, according to the unanimous testimony of the most distinguished fathers of the church of the fourth and fifth centuries, they were even then invoked as intercessors at the throne of God. In ages when information is transmitted chiefly by tradition, facts easily become exaggerated, without intentional violation of the truth; and soon many miracles were reported to have been wrought by their relics or intercession. At the same time, it is undeniable, that, with the diffusion of Christianity, when danger was no longer connected with its profession, and many persons came over to this religion who had but an imperfect knowledge of it, and had not abandoned entirely their former superstitions, pagan notions often became blended with the new religion; and, as many statues of pagan deities were changed into those of martyrs and other persons distinguished for piety, so some hymns, originally addressed to these deities, were now sometimes addressed to departed Christians, who had been eminent for piety; and the special protection of certain persons or things, as ships, churches, &c., was attributed to them as intercessors with God. When monarchs became Christians, and the persecution of believers ceased, so that instances of martyrdom were no longer found, the retiring from the world to the seclusion of a convent, or other great sacrifices made from religious motives, often led to investing the deceased with the character of intercessors with God. A pious bishop, who had devoted his whole life to the welfare of his flock, was looked upon as retaining his care for it in the regions of eternal bliss; so that, by degrees, many saints arose; and it naturally happened that this honour was sometimes paid to unworthy persons, and sometimes actual fraud was committed to obtain it. It was not uncommon for a person to be long considered and invoked as a saint, when it remained doubtful whether he was so regarded by the church. Hence we find that the council at Frankfort on the Maine, 794, prohibited the invocation of new saints; and Charlemagne again, in 805, revived the decree. The pope at last took the matter into his own hands. Pope John XV., in 993, gave the first example of a canonization by the Roman see; and Alexander III. declared, in 1170, that canonization was an exclusive right of the pope, with whom it has since remained.* See *Canonization*, and *Beatification.*

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* "Mandat sancta Synodus omnibus Episcopis, et cæteris docendi munus curamque sustinentibus, ut juxta Catholicæ et Apostolicæ Ecclesiæ usum a primævis Christianæ religionis temporibus receptum, sanctorumque Patrum consensionem, et sacrorum Conciliorum decreta, in primis de Sanctorum intercessione, invocatione, Reliquiarum honore, et legitimo imaginum usu, fideles diligenter instruant, docentes eos, Sanctos, una cum Christo regnantes, orationes suas pro hominibus Deo offerre; bonum atque utile esse suppliciter eos invocare: et ob beneficia impetranda a Deo per Filium ejus Jesum Christum Dominum nostrum, qui solus noster Redemptor et Salvator est, ad eorum orationes, opem, auxiliumque confugere; illos vero, qui negant Sanctos, æterna felicitate in cœlo fruentes, invocandos esse: aut qui asserunt vel illos pro hominibus non orare; vel eorum, ut pro nobis etiam singulis orent, invocationem esse idololatriam, vel pugnare cum verbo Dei, adversarique honori unius mediatoris Dei et hominum Jesu Christi; vel stultum esse in cœlo regnantibus voce vel mente suplicare, impie sentire. Sanctorum quoque martyrum, et aliorum cum Christo viventium sancta corpora, quæ viva membra fuerunt Christi, et templum Spiritus sancti, ab ipso ad æternam vitam suscitanda et glorificanda, a fidelibus veneranda esse, per quæ multa beneficia a Deo hominibus præstantur: ita at affirmantes, Sanctorum Reliquiis venerationem atque honorem non deberi, vel eas, aliaque sacra monumenta a fidelibus inutiliter honorari, atque eorum opis impetrandæ causa Sanctorum memorias frustra frequentari, omnino damnandos esse, prout jampridem eos damnavit, et nunc etiam damnat Ecclesia. Imagines porro Christi, Deiparæ Virginis et aliorum Sanctorum in templis præsertim habendas, et retinendas: eisque debitum honorem et venerationem impertiendam; non quod credatur inesse aliqua in iis divinitas, vel virtus, propter quam sint colendæ: vel quod ab eis sit aliquid petendum: vel quod fiducia in imaginibus sit figenda, veluti olim fiebat a Gentibus, quæ in idolis, spem suam collocabant; sed quoniam honos qui eis exhibetur, refertur ad prototypa, quæ illæ repræsentant: ita ut per imagines, quas osculamur, et coram quibus caput aperimus et procumbimus, Christum adoremus, et Sanctos, quorum illæ similitudinem gerunt, veneremur, id quod Conciliorum, præsertim vero secundæ Nicænæ Synodi, decretis contra imaginum oppugnatores est sancitum."

* Doctor Reichlin Meldegg, Catholic "professor ordinarius" of ecclesiastical history, and temporary dean of the theological faculty at Freiburg, says, in his Proposals for Reformations in the German Catholic Church, "The old Roman breviary, crammed with fictitious or much coloured anecdotes of saints, with repetitions that weary, with passages of indecorous import, &c. requires a thorough revision." In another passage he says, "Some masses are founded on stories not sufficiently proved, or palpable fictions, as the mass of the 'lancea Christi,' the 'inventio crucis,' &c."

Few popes have become saints. Pius V., in 1712, was the first for almost a thousand years, and, so far, has been the last. France, Naples and the German empire, would not acknowledge the canonization of Gregory VII., by Benedict XIII., in 1728. One of the last, if not the very last canonization, is that of cardinal J. M. Tomasi in 1807.

Countries, cities, arts, trades, orders, things, &c., have their patron saints; but the church, it seems, determines nothing in relation to them. St Denis is the patron of France; St George, of England and Russia; St Andrew, of Scotland; St Patrick, of Ireland; Olaff, of Norway; Cnut or Canute, of Denmark; Nepomuc, of Bohemia; Cecilia, of music; Hubert, of hunting; Crispin, of shoemakers, &c. The Greek church does not acknowledge the saints canonized after its separation from the Western Church. See *Acta Sanctorum.*

SAINT-FOIN *(hedysarum onobrychis)*; a plant, somewhat resembling the pea, which grows wild in the countries about the Mediterranean, and is often cultivated elsewhere for fodder. The stem is about a foot and a half or two feet high; the leaves are pinnate, composed of small leaflets: the flowers are pretty large and showy, of a fine pink colour, and are disposed in a short spike, upon a long axillary peduncle. Cattle are extremely fond of it. In its wild state, it is only found on dry, warm, chalky soils, where it is of great duration; and it is chiefly in such districts that it is cultivated to advantage. Its peculiar value is, that it may be grown on soils unfit for being constantly under tillage, and which would yield little undergrass. The deeper the soil is stirred previously to sowing, the better. The seed is generally put in broadcast, at the rate of three or four bushels to an acre; and sometimes a little red clover is sown afterwards, to produce a crop the second season, when the saint-foin plants are but small. Saint-foin is highly nutritive, either cut green, or made into hay. The produce, on a medium of soils and cultivation, may probably be estimated at from one and a half to two tons the acre. The usual duration of this plant in a profitable state is from eight to ten years. It ordinarily attains its perfect growth in about three years. The proportion of nutritive matter in saint-foin is estimated equal to that afforded by white and red clover.

SAINT ALBANS (anciently Verulam); a town in Hertfordshire, England, twenty miles north-west of London. St Albans owes its name to Alban (q. v.), the first martyr in Great Britain, who was buried on a hill near the town, where a monastery was dedicated to his memory. In 1455, a battle was fought here between the Yorkists and the Lancasterians; and, in 1461, another battle was fought between the same parties. Pop. in 1841, 6497.

SAINT ANDREWS. See *Andrews, St.*

SAINT ANTHONY'S FIRE. See *Erysipelas.*

SAINT AUGUSTINE; a city and seaport of East Florida, on a bay of the Atlantic, two miles within the bar; about thirty miles south of the mouth of St John's river, eighty south of St Mary's, three hundred and ten south of Charleston; lat. 29° 45′ N., lon. 81° 40′ W. The town is built on a peninsula, is of an oblong form, and consists of four principal streets. The houses are built of stones formed by the accretion of shells, from the island of Anastasia, near the town. A fort, twenty feet high, with walls twelve feet thick, and mounting thirty-six guns, defends the town. In 1821, when Florida was ceded to the United States, St Augustine contained about 2500 inhabitants; and it has not increased. The appearance of this city indicates decay, and the country around it is too low and unhealthy to sustain it.

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* The above-mentioned decree of the council of Trent also guards against the introduction of new miracles, new relics, &c., if not approved of by the bishop of the diocese.

SAINT CLAIR; a river of America, which flows from lake Huron into lake St Clair. It is about forty miles long, one mile wide, transparent, of easy navigation, and is a pleasant and noble stream. *Fort St Clair* is situated at the upper end of this river.

SAINT CLAIR; a lake situated between lake Huron and lake Erie, and connected with both. It is about ninety miles in circumference, and has several fine islands. Its waters are remarkably transparent. Lat. 42° 52′ N.; lon. 82° 25′ W.

SAINT CYR. See *Cyr.*

SAINT DOMINGO. See *Hayti.*

SAINT ELIAS; a mountain on the western coast of North America, situated about twenty-five miles from the Pacific ocean, in lat. 60° 27′ N., lon. 148° 51′ W. It rises 17,850 feet above the ocean, and stands so separate from other mountains as to be a very important landmark. Its top is always covered with snow. This is the most elevated summit of what is sometimes called the Cordillera of New Norfolk, and is one of the highest mountains in North America.

SAINT EVREMOND. See *Evremond.*

SAINT FRANCIS; a river which rises in Missouri, and flows into the Mississippi in Arkansas, lat. 34° 45′ N. It is a large river, and was formerly navigable 300 miles for large keel boats; but the earthquakes of 1811—12 raised its channel so much, and so irregularly, as to cause the waters to overflow the banks, and form a vast number of lakes and irreclaimable swamps along its former course. At high water, this river is still navigable about 200 miles; and there are several considerable settlements about seventy miles from its mouth. A great deal of land on its banks is fertile; its waters abound with excellent fish; and the forests through which it flows afford abundance of the finest game.

SAINT GALL (in German, *Sanct Gallen*); a canton of Switzerland, in the north-west part of the confederacy, bounded north by the lake Constance, east by Tyrol, south by the cantons of Schweitz and Glarus, and west by that of Thurgau; square miles, 2100; population, 140,000, of whom rather more than one half are Catholics. The manufactures of this canton, principally of linen and muslins, are extensive, and furnish the chief occupation of the inhabitants. St Gall is formed from the estates of the rich Benedictine monastery of the same name, which were secularized by the French, and was admitted into the confederacy in 1803. The constitution is aristocratical, the government being conducted by a great council of one hundred and fifty members, and an executive council of thirteen, composed of members of the former. The canton sends a member to the federal diet. In 1830, St Gall was the theatre of revolutionary movements, which were quieted by seasonable concessions. (See *Switzerland.*) The capital, St Gall, with a population of 9000, is distinguished by the manufacturing and commercial activity of the inhabitants. It contains the old Benedictine abbey, has two libraries rich in manuscripts, and some learned societies.

SAINT GERMAIN. See *Germain.*

SAINT JOHN. See *Bolingbroke.*

SAINT JOHN'S BREAD, OR CAROB-TREE (*ceratonia siliqua*); a middling sized tree, with tortuous branches, which grows wild in the countries about the Mediterranean, and particularly abounds in Barbary and Egypt. It belongs to the *leguminosæ*, and is allied to the locust. The flowers are diœcious, small, inconspicuous, and disposed in spikes; they are succeeded by long, indehiscent, thick pods, pulpy internally, and divided by several transverse partitions. The Moors make great use of the pods as an article of food, and they have a sweetish and very agreeable flavour. It is the only species of the genus.

SAINT JOHN'S WORT (*hypericum perforatum*). The stem of this plant is straight, one or two feet high, bearing oblong and obtuse leaves, with semi-transparent dots. The flowers are in a terminal corymb, and of a bright yellow colour. It formerly enjoyed a high repute for medicinal purposes, but is now entirely out of use. The flowers communicate a fine purple colour to spirits and oils; and the dried plant, boiled with alum, dyes wool yellow. It formerly enjoyed much celebrity among the superstitious, as a charm against witchcraft, &c.

SAINT LOUIS. See *Louis, St.*

SAINT MARIA DE PUERTO PRINCIPE; a city of Cuba, capital of the department of the Centre, on the northern coast of the island, 300 miles south-east of Havana. It has a good harbour, and contains several hospitals. The population of the city and precincts is 49,012, consisting of 32,996 whites, 6165 free persons of colour, and 9851 slaves. Lat. 21° 20′ N.; lon. 77° 45′ W.

SAINT PIERRE. See *Pierre, Saint.*

SAINT REAL, CESAR VICHARD, ABBE DE; a historian, born at Chamberry in 1639, studied with the Jesuits at Paris, where his talents and learning gained him friends. He accompanied the duchess of Mazarin to England, and afterwards resided again in Paris, assuming the title of abbé, although without having any benefice. His writings involved him in a controversy with Arnaud, who accused him of Socinianism. He died in 1692. His principal works are his *Discours sur la Valeur;* his *Sept Discours sur l'Usage de l'Histoire;* and his *Histoire de la Conjuration des Espagnols contre la République de Venise*, which partakes of the romantic, and is by no means equal, in point of style, to his model, Sallust. His *Don Carlos* is well written, but is likewise of a romantic character: his translation of Cicero's letters to Atticus is of less merit. A complete edition of his works was edited by Perau in 1757 (8 vols., 12mo.).

SAINT SALVADOR. See *Bahia.*

SAINT SALVADOR. See *Cat Island.*

SAINT SEBASTIAN. See *Sebastian, San*, and *Rio Janeiro.*

SAINT SIMON. See *Simon, St.*

SAINT THOMAS, CHRISTIANS OF. See *Christians of St Thomas.*

SAINTONGE; formerly a province in the west of France, bounded by the Atlantic, Poitou, Guienne, and Angoumois. It belonged to the

English from the time of Henry II. until it was conquered by Charles V. It now forms the department of the Lower Charente. The capital, Saintes, with 10,300 inhabitants, contains some fine remnants of ancient architecture.

SAKER; a name formerly used for a small species of cannon. See *Cannon*.

SAKHARA; the necropolis of ancient Memphis, from whose ruins it is about two miles distant, on the edge of the Libyan desert. It is remarkable for its ancient monuments, among which are thirty pyramids, besides the ruins of a great number, and numberless grottoes, sarcophagi, the ibis-catacombs, &c.

SALACINE. M. Leroux, a Frenchman, extracted this principle from willow bark, and presented a memoir* on it to the French academy in 1830. He recommends it as a febrifuge instead of quinine, and cases of cures with it have since been reported. Salacine (thus called by M. Leroux) is in the form of very fine nacreous white crystals, very soluble in water and alcohol, but not in ether. It is in a high degree bitter.

SALADIN, OR SALAHEDDIN YUSEPH BEN AYUB, a celebrated sultan of Egypt and Syria, was born, in the year 1137, in the castle of Tecnib, of which his father, a native of Curdistan, was governor. In 1168, he was chosen to succeed his uncle Siracouh in the command of the armies of the Fatimite caliph Adhed, or rather of the sultan Noureddin, his immediate superior. He terminated the dynasty of the Fatimite caliphs of Egypt (1171), at the command of Noureddin, and subsequently endeavoured to supersede the minor son of Noureddin himself, but did not succeed until after his death (1174), when he was recognised sultan of Syria and Egypt by the caliph of Bagdat. The great object both of his religion and his politics was how to expel the Christians from Palestine, and to recover the city of Jerusalem. An atrocious massacre of Mohammedan pilgrims by the French lord du Chatillon, added still more to his ardour; and his vow of revenge against the perpetrator he was enabled to make good by his famous victory on the plain of Tiberias, in 1187, where he captured Guy de Lusignan with the chieftain Chatillon (whom he cut down after the battle with his own scimitar), and many more. The fruits of this victory were the towns of Acre, Said, and Barout; after which he laid siege to Jerusalem, which yielded (1187), in a capitulation, to the articles of which Saladin faithfully adhered. He then proceeded against Tyre, but failed, in consequence of the destruction of his fleet by the Franks. The intelligence of the loss of Jerusalem reaching Europe, produced the crusade under the emperor Frederic Barbarossa (see *Frederic*), whose death inspired the Mussulman with hopes which were soon damped by the arrival of the forces of Richard Cœur-de-Lion of England, and of Philip Augustus of France. The recovery of Acre by the two kings took place in 1191; upon which event Philip returned to France, and Richard, after twice defeating the sultan, took Cæsarea and Jaffa, and spread alarm as far as Jerusalem. At length a truce was concluded between Richard and Saladin, by the terms of which the coast from Jaffa to Tyre was ceded to the Christians, whilst the rest of Palestine remained to the sultan. The departure of Richard freed Saladin from his most formidable foe. This active and able prince soon after died at Damascus (in 1193), in the fifty-sixth year of his age. Though chargeable with unjustifiable means of acquiring power, Saladin employed it, when obtained, usefully for his subjects, whose burdens he lightened, whilst he benefited them by many useful works and establishments. Magnificent in his public undertakings, he was frugal in his personal expenses. In religion he was zealous for his creed almost to fanaticism, but faithful to his engagements. A lasting proof of the terror which his name inspired, was given by the Saladin Tenth, imposed by the authority of pope Innocent X. on clergy and laity, for the support of the holy war. Saladin left a family of seventeen sons and one daughter, and was the founder of the dynasty of the Ayoubites.

SALAMANCA; capital of a province of Spain, in the southern part of the kingdom of Leon. It is in a picturesque and agreeable situation on the Tormes, which is here crossed by a stone bridge, half of which is of Roman workmanship; lat. 41° 5′ N.; lon. 5° 10′ W.; one hundred and twelve miles north-west of Madrid; population, 13,920, exclusive of the students and religious. It is badly built, with narrow, crooked, and dirty streets, but has some handsome squares, of which the *Plaza Mayor*, where bull-fights are exhibited in June, is one of the finest in Spain. There are here twenty-five parish churches and thirty-seven convents. The numerous churches, with their works of sculpture and painting, are described in Ponz's *Viage de Espana*. The cathedral is a magnificent Gothic edifice, begun in 1513, and completed in 1734: it presents great inequalities and disproportions. The old church, built in the twelfth century, has several interesting monuments; and in a chapel belonging to it, the mass is said according to the Mozarabic manner. The Jesuits' college, built in 1614, is one of the most splendid which the order possessed in Spain, and, since their abolition in 1798, it has been, in part, occupied as a theological seminary. The university buildings consist of two divisions separated by a street, the *escuelas menores*, and the university, properly so called, or *escuelas mayores*, in which are the theological, law, medical, philosophical, philological, &c., lecture rooms. The university was founded in the thirteenth century, by Alphonso IX. of Leon; and, in 1239, Ferdinand III. united with it the Castilian university of Palencia. (See Davila's *Historia de Salamanca*.) Its reputation extended through Europe, and, at the end of the sixteenth century, it had, according to Medina (*Grandezas de Espana*), 7000 students; but with the decline of literature in Spain, in the seventeenth century, it sank to a very low condition. According to Hassel, the number of students, in 1827, was but 418. There are also some other institutions for education at Salamanca. The banks of the Tormes, and the country to the west of Salamanca, were the scene of an engagement between the British under Wellington, and the French under Marmont, July 22, 1812. The French had abandoned the place, on the first attack by the allied Portuguese and British forces, June 16. Meanwhile, Marmont, having received reinforcements, advanced against the British; and, after various movements, the object of which was to cut them off from Ciudad Rodrigo and Salamanca, the battle took place in the narrow space on the Tormes. The French commander had formed his plan of attack judiciously, but incautiously extended his left wing too much—an error of which Wellington promptly took advantage. Marmont himself was so severely wounded, that general Clausel took the command, and prevented the total ruin of the army. The French forces retreated to Burgos, and their communication with the body of troops under Joseph Bonaparte, in the centre of Spain, was cut off.

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* Messrs Gay-Lussac and Magendie reported very favourably on this memoir to the academy.

SALAMANDER (*salamandra*); a genus of reptiles closely allied to the frog, from which it differs in having an elongated body, terminated by a tail, and four feet of equal length. There are no gills in the adult animal, and the tympanum is also wanting. The jaws are armed with numerous small teeth: and there are two longitudinal rows on the palate. The third eyelid is wanting. Together with the frog, this genus is included under the order *batracia*, and is easily distinguished from the lizards by having no nails on the toes, a naked skin destitute of scales, and a heart with a single auricle. The young are born in the shape of tadpoles, are provided with gills, and have their tails vertically compressed. The land salamanders inhabit the water only during the tadpole state, or during the time that they are laying their eggs: they are distinguished by a rounded tail. The aquatic species remain during life in water, and are enabled to swim with considerable briskness by means of their compressed tails: sometimes, however, they quit the water at night, and when unable to regain it, have been found in similar situations with the terrestrial species. They are endowed with an astonishing power of reproduction; and, when mutilated, their limbs, tail, and even their eyes, are restored at the end of two, three or six months, in warm climates, or a longer period in cold ones; and no difference of organization can be discovered on dissection. They may be suffocated in the same manner as frogs, by forcibly holding open the mouth.

The common salamander of Europe (*S. vulgaris*) has been celebrated from antiquity for its supposed power of braving the fiery element. It is almost unnecessary to observe that this quality has been attributed to it without the slightest foundation: still the belief is not entirely eradicated among the common people, and the salamander continues to be an object of superstition in the eyes of many. It is a sluggish, clumsy reptile, six or eight inches long, of a blackish colour, with large, irregular, rounded spots of bright yellow. It is found throughout Europe in moist places, under stones or the roots of trees, near the borders of springs, in deep woods, &c., and passes its life under ground, except during rains or at night, when it comes out, but does not wander far from its place of residence. It lives on slugs, insects, worms, &c., and, when met with, seems stupid, and does not appear to shun the presence of man or other animals. The skin exudes a mucous and acrid secretion in great abundance. It is ovoviviparous.

It would seem that the United States produce a greater variety of salamanders than any other part of the globe. They are, however, far from being well understood; and probably more remain to be discovered. We shall particularize the following, among the land salamanders:—*S. subviolacea;* a large, stout species, seven inches or more in length; blackish, with two rows of large, round, whitish spots on the back, becoming single on the tail; a few similar spots on the legs. It resembles the common salamander of Europe.—*S. faciata;* green; less than the preceding; blackish, with transverse bluish-white bands on the back; found from New Jersey to South Carolina, but rare.—*S. glutinosa;* green; a more slender species, with the tail nearly twice the length of the body; blackish, sprinkled on the upper parts of the body with white specks; length about six inches. It is found in most parts of the United States, and as far north as lat. 43°.—*S. longicauda;* green; whitish, with numerous black specks; the tail longer in proportion than in any other species; total length, six inches. It is found in the Atlantic states, but is more frequently met with in the limestone caves of the west.—*S. bilineata;* green; a small, slender species; above brown, beneath yellow, with two, or sometimes three, indistinct black lines; the tail is longer than the body, and compressed towards the extremity. It inhabits New England and the Middle States, and seems to be more brisk and lively in its motions than the other terrestrial species.—*S. cirrigera;* green; a species somewhat resembling the preceding in the distribution of its colours, but remarkable for having two short, fleshy *cirri* on the snout. It was found in the vicinity of New Orleans.—*S. erythronota* (the most common species); blackish, with a broad red stripe on the back. The young are destitute of the red stripe, and in some full grown individuals a small portion only is observable, or it is even entirely wanting.—*S. symmetrica* (Harlan); reddish, with a row of bright orange ocellated spots on each side; length about three inches. The skin of this animal is rough, and apparently destitute of the mucous secretion common to the other species; the back is elevated, and the tail somewhat compressed. An aquatic species, resembling it precisely except in having the colour of the back browner, and the tail much more compressed, is frequently met with; and perhaps the difference is only sexual.

Among the aquatic salamanders we may particularize, *S. dorsalis* (Harlan); resembling the preceding in size and the general distribution of the colours; but the *ocelli* are irregularly elongated, and sometimes form an almost continuous line; and there is a pale line on the back: the skin is smooth; the tail very much compressed, forming a distinct edge above and below; inhabits South Carolina.—*S. maculata;* green; a stout species; whitish, with numerous round specks of a reddish brown colour; tail about as long as the body, and slightly compressed; grows to the length of five inches or more.—*S. ingens;* green; by far the largest species hitherto known; nearly a foot in length. It was discovered in the vicinity of New Orleans.

This is perhaps the most appropriate place to speak of several very singular North American animals, allied to the salamander:—*Menopoma Alleghaniensis;* an animal of disgusting appearance, with a broad, flattened head, bearing a general resemblance to a salamander, but much larger than any except the *S. ingens.* It appears to be destitute of gills at all periods of its existence. It is found in the Ohio and other western rivers, and is commonly called *ground-puppet, mud-devil, young alligator,* &c.—*Menobranchus lateralis* resembles the preceding in form, but the gills persist during life; an indistinct blackish band on each side. It attains the length of one or two feet, lives in the water, and is very voracious. It is found in the Ohio and the lakes.—*Siren lacertina;* an eel-shaped animal, having external gills, and two small feet, situated at the anterior part of the body. It conceals itself in the mud, but occasionally visits both land and water. It inhabits the Southern States. Two other species of siren are found in the same districts.—*Amphiuma means;* likewise an eel-shaped animal, but it has four very small rudimentary feet, which have two toes each. It burrows in the mud, in swamps, or in the vicinity of streams, and occasionally visits the dry land. It grows to the length of three feet, and is found in the Southern States. A second species, a *tridactyla*, distinguished from the former by having three toes on each foot, has been discovered in Arkansas.

SALAMANDER. See *Gabalis*, and *Gnome*.

SALAMIS (now Colouri); an island (area, eighty square miles) on the eastern coast of Greece, in the gulf of Argolis, separated from Attica by a narrow channel, about half a mile wide. It is celebrated for the naval victory gained by the Greeks over the Persians (B. C. 480). See *Themistocles*, and the article *Navy*.

SAL AMMONIAC. See *Ammonia*.

SALANGANE, OR HIRUNDO ESCULENTA. See *Birds' Nests*.

SALEM. See *Jerusalem*.

SALEM, a seaport of North America, and the capital of Essex county, Massachusetts, is chiefly built on a tongue of land, formed by two inlets from the sea, called North and South rivers, over the former of which is a bridge more than 1500 feet in length, connecting Salem with Beverly; and the South river forms the harbour. Salem is fourteen miles north-east from Boston, 450 from Washington; lat. 42° 34′ N.; lon. 70° 54′ W.; population in 1820, 12,731; in 1830, 13,886. This town is the second in Massachusetts in respect to population, and probably in respect also to wealth; but New Bedford now surpasses it in its amount of shipping, and Lowell and some other towns greatly exceed it in manufactures. The trade of Salem is principally with the East Indies, and it employs a very large capital. Salem is, next to Plymouth, the oldest town in the state, and was settled in 1628. Its Indian name was *Naumkeag*, or *Naumkeak*.

SALEP is obtained from the tuberous roots of one or more species of orchis, and is usually imported from Turkey and other parts of the Levant; though it may be prepared in any part of Europe, from many common species of orchis. The process consists simply in washing the roots, and rubbing off the brown skin, when they are dried, and afterwards ground into powder. This powder, as an article of diet, is esteemed highly nutritious, containing a great quantity of farinaceous matter in a small bulk. The roots are dug up as soon as the flower stalks begin to decay, and the newly formed bulbs, which have then attained their perfect state, are separated. An ounce of this powder and an ounce of portable soup, dissolved in two quarts of boiling water, will form a jelly capable of affording sustenance to a man for a day; consequently, it is of great use in long voyages, or travels by land.

SALERNUM (now Salerno); a city in the province of Picenum, in Lower Italy, remarkable for the *civitas Hippocratica*, or medical institution, called also *schola Salernitana*, which flourished there in the twelfth century after Christ, and was the nursery of all the medical faculties of Europe. This was the principal source of modern practical medicine; and the dietetical precepts of this school were put into verse, and widely diffused. See *Medicine, History of.*

SALESIAN NUNS. The nuns of the order of the visitation of the Virgin Mary are so called from their founder, Francis of Sales, by whom and his friend Chanta this order was established, in 1610, at Annecy, in Savoy, originally as a refuge for widows and sick females. In process of time, however, it was enlarged, and devoted principally to spiritual exercises and the healing of the sick; the occupants were clad in black, and so numerous that, in the eighteenth century, there were 160 convents and 6600 nuns. There are still convents of the Salesian nuns in the principal cities of Italy, particularly in Venice, Trieste and Breslau. They now devote themselves to the healing of the sick and the education of young girls.

SALFORD; a market-town of Lancashire, in the parish of Manchester and hundred of Salford. Though governed by its own borough reeve and constables, it may now be considered an integral portion of Manchester. At the time of Domesday-book it was a royal manor, and, from its having given name to the hundred, was probably of considerable importance. The most conspicuous edifice in the town is the New Bailey prison for the hundred of Salford; it is a handsome, strong, and spacious building, constructed upon Mr Howard's plan, and has contained within its walls at one time 1000 prisoners. The principal attraction of Salford is the crescent, which commands a rich view of rural scenery, through which the Irwell meanders. Population in 1841, 53,200. See *Manchester*.

SALIANS, SALIC FRANKS; a people who first appeared on the island of the Batavi, and, when they were driven thence, among the Chamari, to the south of the Meuse. As long as the Cherusci are spoken of, nothing is heard of the Salii; but as soon as the latter are noticed, the Cherusci disappear, and are no longer mentioned. The Salians probably took their name from that of a river in their former country, and first used it when they emigrated to Batavia, upon which they bordered. From the Salians originated the Salic code of laws, which was probably drawn up in Latin, before the time of Clovis, by four of their most distinguished men—Arogast, Bodogast, Salogast and Windagast. It was in force, in some degree, even as late as the eleventh and twelfth centuries. The sixty-second article of this code is very remarkable, according to which, in Salic estates,—that is, those which the Salic Franks had obtained by conquest in Gaul and modern France,—the daughters were excluded from the inheritance, and the sons alone were considered capable of succeeding to it. Notwithstanding this article had reference only to private estates, the application of it was even extended to the throne; and it is certain that, from the earliest periods of the French monarchy, no princess succeeded to the throne, except by force of some law different from the ordinary usage. The Salic law was first alleged against Edward, in the contests between Philip VI. of France and Edward III. of England, about the French crown, and has, since that time, remained always in force.

SALIC LAW. See *Salians*.

SALIERI, ANTHONY, imperial chapelmaster at Vienna, was born in 1750, at Legnano, a Venetian fortress. He studied at Venice and Naples, under Pescetti, Gassmann, and Gluck. His opera, the Danaides, was at first considered, in Paris, to be chiefly the work of Gluck. Some of his most celebrated works are *Tarare* (introduced on the Italian stage under the title of Axur, king of Ormus), *La Passione di Gesù Cristo, La Scuola dei Gelosi, La Ciffra, Palmira* (1795), *Armida, Semiramida*, the Fair of Venice, &c. He composed thirty-nine operas, partly German, partly Italian. His death took place, May 7, 1825. Hummel, Moscheles, and others, are his pupils. See Mosel, *On the Life and Works of Salieri* (in German, Vienna, 1827.)

SALII; priests of Mars, whose name is derived from *salire* (to leap, to dance). Numa fixed their number at twelve; Tullus Hostilius increased it. Their origin is thus accounted for by the Romans: In the time of Numa, Rome was desolated by a pestilence, which ceased when the gods let fall from heaven the *ancile* (a shield of a peculiar form). The soothsayers declared that this shield was the sign of the perpetuity of the Roman power, and advised that eleven others should be made similar to it, so that the true *ancile* could not be so easily purloined. This advice was followed, and all the *ancilia* were deposited in the *curia*. On the first of March every year, when the Salii offered sacrifices to Mars, they carried them about the city, clashing them together, executing warlike dances, and singing the Salian hymns—ancient songs in praise of Mars and the other gods, and of distinguished men, particularly of Mamurius, who made the eleven shields. The dress of the Salii was a purple tunic, embroidered with gold, and bound with a brazen belt, and a toga, with a purple border. On their head they wore a high cap, in the form of a cone, with a sword by their side, a spear or rod in their right hand, and an *ancile* in their left. None but patrician youths, whose parents were alive, could be admitted among the Salii.

SALINA; a post-township of Onondaga county, New York, 130 miles west of Albany. It includes Onondaga lake, and the principal salt springs in the state. The water of the lake is salt: and wells dug on its margin, and springs flowing into it, are also salt. Very extensive salt works have been established for several years. From sixteen to twenty-five ounces of salt are obtained from a gallon of water. Besides the muriate of soda, small portions of the muriate of lime, sulphate of lime, oxide of iron, and Epsom salts, are contained in the water; but these are easily separated. More than half a million of bushels of salt are annually produced, and these waters are doubtless capable of yielding a very much greater quantity. The outlet of Onondaga lake communicates with Seneca river, through which is opened an extensive boat navigation. The Erie canal passes through the south part of Salina, and a side cut connects it with the village. There are four considerable villages in the township—Salina, Liverpool, Syracuse, and Geddes. The whole contained, in 1830, 6920 inhabitants.

SALINE; a river of Illinois, which flows into the Ohio, about twenty-six miles below the Wabash. It is navigable for boats thirty miles. The United states have extensive salt works on this river.

SALISBURY, earl of. See *Cecil.*

SALISBURY, or **NEW SARUM**; an ancient city of England, the capital of Wiltshire, is situated in a valley between the rivers Avon and Bourne, eighty-two miles S. W. by W. from London. The principal streets are regularly arranged and crossed by others, forming a number of quadrangles called checkers, enclosing areas, laid out in gardens and encompassed by houses. Some of the buildings are antiquated, with gabled fronts of timber-work and plaster; but the houses in general are well built of brick, in a modern style. The city is connected with the suburb of East Harnham, by an ancient bridge of ten arches, on which was formerly a chapel dedicated to St John; and there are two stone bridges of six arches, which form a communication with the suburb of Fisherton Anger. Salisbury was founded in the beginning of the thirteenth century, in consequence of the ecclesiastical establishment of the see of Sarum, an ancient city about two miles distant, having been transferred hither by the Bishop, Richard le Poor, who adopted this measure partly to put an end to the inveterate quarrels between his clergy and the garrison of the royal castle of Sarum, and partly in consequence of the great scarcity of water in the old city, which probably was the cause of its being ultimately entirely deserted by the inhabitants. Its name is obviously an alteration, for the sake of euphony, of Sarisbury (Sorbiodunum), an appellation of the ancient city. About 1219 were laid the foundations of the present cathedral church, which is one of the finest in Europe. The whole building may be viewed as composed of the church, the tower, and spire, the cloister and the chapter-house. The church consists of a nave, with two lateral aisles, a bold and lofty porch projecting on the north side, a large transept with an eastern aisle, a choir with lateral aisles, and a second or small transept with an aisle, a Lady chapel at the east end with an intermediate vestibule, or double aisle terminating the choir. On the south side of the church are a cloister, chapter-house, consistory court, and a vestry. The tower, which is built on four massive pillars in the centre of the church, is surmounted by a spire, rising to the height of 400 feet. The bishop's palace is a large irregular building, the work of different periods, the earliest parts being of the same age as the cathedral. The college of matrons, for the widows of clergymen, erected by bishop Ward, is a regular building, with small but commodious gardens. There are three parish churches in the city. In Catholic times, Salisbury contained a great variety of religious establishments, the remains of a few of which may be traced; and the hospital of St Nicholas continues still to maintain a master and twelve poor persons. There are several other hospitals in the city. Salisbury is noted for its manufacture of cutlery. Formerly it was also remarkable for its manufacture of woollens; but that branch of trade is now nearly extinct. Population in 1841, 10,086.

Salisbury Plain extends from Salisbury twenty-five miles east to Winchester, and twenty-eight west to Weymouth. Its breadth in some places is near thirty miles. Numerous flocks of sheep are fed here. The famous Stonehenge, and other antiquities, both British and Roman, are found in this plain.—Stonehenge, about six miles north of Salisbury, consists of a great collection of stones of immense size, which, from their being some erect, some reclining, but most of them lying upon the ground, seem to have formed at one time an extensive building. They form a perfect ruin, a confused heap of standing and fallen stones, many of them squared and hewn by art. By comparing their relative situations, the shape and dimensions of the original structure can still be traced, which is supposed to have been a Druidical temple of enormous size. It is an object of great interest to the antiquary, and has excited more inquiry and speculation than any other ruin of the kind in Great Britain. But no important discoveries have been made within it.

and its founders, the date of its erection, and the process by which such enormous masses of stone were conveyed to this desolate spot, and raised into their respective situations, are buried in profound obscurity. The total number of stones of which the structure was composed, appears to have been one hundred and forty.

SALIVA; the fluid which is secreted by the salivary glands into the cavity of the mouth. The secretory organ is composed of three pair of salivary glands. The saliva is continually swallowed with or without masticated food, and some is also spit out. It has no colour nor smell: it is tasteless, although it contains a little salt, to which the nerves of the tongue are accustomed. Its specific gravity is somewhat greater than that of water. The quantity of twelve pounds is supposed to be secreted in twelve hours. During mastication and speaking, the secretion is augmented, from the mechanical pressure of the muscles upon the salivary glands. Those who are hungry secrete a great quantity, from the sight of agreeable food. It assists the spirituous fermentation of farinaceous substances; hence barbarous nations prepare an inebriating drink from chewed roots. Saliva appears to consist, in a healthy state of the body, of water, which constitutes at least four fifths of its bulk, mucilage, albumen, and saline substances. The use of the saliva is, 1. It augments the taste of the food, by the evolution of sapid matter. 2. During mastication, it mixes with, dissolves, and resolves into its principles, the food, and changes it into a pultaceous mass, fit to be swallowed; hence it commences chymification. 3. It moderates thirst, by moistening the cavity of the mouth and fauces.

SALKELD, LITTLE; a hamlet of England, in Cumberland; near which is a circle of stones, seventy-seven in number, each ten feet high. At the entrance is a single one fifteen feet high. These are called by the people *Long Meg and her daughters*. They are probably a Druidical work. Within the circle are two heaps of stones, under which dead bodies are supposed to have been buried.

SALLEE; a seaport on the western coast of Morocco, at the mouth of a river of the same name, formerly the great hold of Moorish piracy; and immense depredations were committed from it upon European commerce. The river, which formerly admitted large vessels, is now choked up with sand. Sallee has a battery of twenty-four pieces of cannon, which commands the road, and a redoubt that defends the entrance of the river. On the opposite side of the river stands Rabat, called often New Sallee. It has been chiefly frequented by Europeans, and contained once numerous factories belonging to them; but by order of the emperor, the trade has been transferred to Mogador. Lon. 6° 40′ W.; lat. 34° 3′ N.

SALLUSTIUS, Caius Crispus, was born at Amiternum, a municipal city in the territory of the Sabines, in the year of Rome 668 (86 B. C.). His gay spirits and his fiery and restless disposition led him into many youthful excesses; yet it is not improbable that he was less corrupt than has been commonly represented. We ought also to take into consideration the prevailing state of morals at that time when we sit in judgment on his faults. His faithful and vigorous descriptions of the moral depravity of the Romans plainly show that he was accurately acquainted with it. Through the favour of Cæsar, he was appointed pretor, and sent to Numidia, where he collected great treasures. When he returned to Rome, he played a conspicuous part, and in the latter part of his life appears to have reflected on the vices of his youth, and to have lived more moderately. His death took place in the year of Rome 719 (B. C. 35). During the period of his retirement, he made the history of his country his principal study. But, unfortunately, we have only a few fragments of the copious history which described the period from the death of Sylla to the conspiracy of Catiline. Two other historical writings of his have come down to us entire; one a description of the wars of the Romans against the crafty Jugurtha, the other of the conspiracy of Catiline. These are distinguished alike for their contents and their style. Sallust appears to have taken Thucydides as a model; but, in the opinion of Quinctilian, he far surpasses him. The style of Sallust is vigorous, pure, and often very eloquent; his thoughts possess dignity, strength, truth and clearness. The principal editions of this author are those of Corte, with a copious commentary (Leipsic, 1724), and Haverkamp (Amsterdam and Utrecht, 1742).

SALLY. In the defence of a place, if particular reasons do not determine to the contrary, frequent sallies are beneficial, in order to keep the enemy at a distance; to destroy the works; to bring in, if possible, the means of subsistence from the surrounding country; to afford an easy entrance to men or arms; or to favour the operations of a friendly force without. Aided by such a force, they are often decisive against the besiegers. They are undertaken to the most advantage after midnight, in cloudy or rainy weather; but they must be so managed as to surprise the enemy, and therefore, must be carried on with great secrecy; therefore the most resolute and faithful men are to be selected, and on going out all noise must be avoided. The object of the sally determines the number of soldiers; they are frequently accompanied by artillery and cavalry; they must in no case separate themselves too far from the fortification, to avoid being cut off, and, on their return, must neither obstruct the defence, nor occasion any confusion which may favour the attack of the enemy. By sallies with a small number of troops, the besieged often endeavour to entice the besiegers within the fire of the fortress, or to harass and exhaust them. A commander of a fortress will make use of sallies as long as he is able, as the best means of defence.

SALLYPORT; a large port on each quarter of a fireship, out of which the officers and crew make their escape into the boats as soon as the train is fired.

SALM. Previously to the French revolution, in 1789, there were two counties of this name, that of Upper Salm, chiefly in Lorraine, and that of Lower Salm, chiefly in Luxemburg. Their possessions having been annexed to France in 1802, they were indemnified from the secularisations beyond the Rhine. The elder house, Obersalm, or Upper Salm, is divided into the three branches of Salm-Salm, Salm-Kyrburg and Salm-Horstmar. The house of Niedersalm, or Salm-Reiferscheid, is divided into three branches, Salm-Krantheim, Salm-Reiferscheid, and Salm-Dyk, with domains in Suabia, the Prussian province of the Lower Rhine, and Luxemburg. All the possessions of both houses have been mediatised. See *Mediatisation*.

SALMASIUS, Claudius (the Latinized name of Claude de Saumaise), distinguished for his profound and extensive learning, was born at Sémur, in Auxois (now the department Côte-d'Or), in 1588. His father, a respectable magistrate, and a learned man, instructed him in the ancient languages, and then sent him to Paris to study philosophy. His edition of Florus, which was published in 1609, and, according to his own assertion, had already been completed several years, is a remarkable proof of his early erudition. In 1606, he went to Heidelberg, to study law, under the celebrated Gothofredus (Godefroi). The excellent university library there gave him an opportunity to gratify his literary curiosity, and to extend his reputation by the publication of his learned labours. On his return to France in 1610, he began to practise his profession, but soon withdrew from it to devote his whole time to study; and the rest of his life was occupied with critical labours and learned controversies. His mother, a Calvinist, had educated him in Protestant principles; and, in 1623, he married the daughter of a respectable Protestant. Several years later, he passed some time at the country seat of his father-in-law, near Paris, where he completed his great labour on Pliny and Solinus. In 1629, his father was desirous of transferring to him his place, and the parliament of Dijon made no objection, although he openly professed Calvinism; but the keeper of the seals, Marillac, refused to sanction the step. The invitations of the universities of Padua and Bologna were declined by Salmasius; but, in 1651, he accepted the offer of the professorship, which had been held by Joseph Scaliger at the university of Leyden. His friends made several attempts to induce him to return to France, and cardinal Richelieu offered him a pension, on condition of his writing a history of his ministry. But Salmasius declined all these offers. In 1649, Charles II. of England induced him to write a defence of his father *(Defensio regia pro Carolo I.)*, which was answered by Milton's *Defensio pro Populo Anglicano.* (See *Milton.)* The zeal with which Salmasius defended royalty in this work offended his republican patrons in Holland, and he therefore the more readily accepted the invitation of queen Christina to visit Sweden (1650). But the climate of Sweden was so unfavourable to his health, that he returned to Holland the next year, and died in 1653, at Spa, whither he had gone for his health. Although virulent in controversy, Salmasius was remarkably gentle and kind in private, and at home was entirely governed by his wife. The most important of his numerous works are his *Plinianæ Exercitationes in Solinum;* his edition of the *Scriptores Historiæ Augustæ; De Mutuo; De Modo Usurarum; De Fœnore Trapezetico; De Re militari Romanorum; De Re Hellenistica; Observationes in Jus Atticum et Romanum,* &c. All his works display a wonderful variety, extent and depth of erudition, but are less remarkable for taste or judgment. His learning was aided by a powerful memory. Besides the classical and many modern languages, he was acquainted with Hebrew, Chaldaic, Arabic, Persian, Coptic, &c. He laboured with great industry, but used the file sparingly.

SALMON *(salmo salar);* a celebrated fish belonging to the trout genus, which inhabits the northern seas, and ascends the rivers in spring for the purpose of depositing its spawn. The excellence of its flesh is well known, but it varies somewhat in different waters. In certain districts, the abundance of this fish forms a great source of wealth to the inhabitants, and it often forms a chief article of sustenance. The salmon inhabits the European coasts, from Spitzbergen to Western France, but is never seen in the Mediterranean. On the western shores of the Atlantic it is found from Greenland to the Hudson, but is exceedingly rare in the latter river, and never penetrates farther south. It ascends the St Lawrence to lake Ontario, and enters the tributaries of that lake; but the fall of Niagara presents a barrier to its farther progress into the continent. In the North Pacific the salmon again makes its appearance, and frequents, in vast numbers, the rivers of North-western America, Kamtschatka, and Eastern Asia. A cold climate and clear water seem to be most congenial to its constitution.

The Salmon grows to the length of four, five or six feet, and usually weighs twelve or fifteen pounds. The body is elongated and compressed; the colour silvery-gray, with spots; the head of moderate size, and the upper jaw rather the longest. Almost all parts of the mouth, and even the tongue, are furnished with pointed teeth, as in the other trouts, and, like them, it has an adipose fin upon the lower part of the back. All the trouts are voracious and carnivorous, and in general seek the purest water. As soon as the ice melts, the salmon enter the mouths of rivers, and, as has been ascertained, almost always of those which gave them birth. They swim usually in immense bodies, in the middle of the stream, and near the surface: their progress is slow, and they make a great noise in sporting, if the weather be fine. They are easily frightened, either by a sudden noise or floating timber, and on such occasions sometimes turn aside from their course and return to the sea. When farther advanced, they make the most determined efforts to surmount rapids and cascades, and will leap a fall of twelve or fifteen feet in perpendicular height. If alarmed, they dart away with such rapidity that the eye can scarcely follow them. The velocity of this motion has been proved to equal twenty-five to thirty miles per hour. They penetrate far into the interior of the continents, and deposit their spawn in the lakes, &c., about the head-waters of the longest rivers. When the young are about a foot in length, they descend the rivers and take refuge in the ocean. Late in the following spring or in the beginning of summer, and after the old ones have ascended, the young again enter the rivers, and are then about eighteen inches in length. They again seek the ocean on the return of frosts. At two years old, the salmon weighs six or eight pounds, and requires five or six years to attain the weight of ten or twelve.

The salmon-fishery is one of the most important branches of business in the north of Europe. Immense quantities of this fish are taken every year, and form a considerable accession to the general mass of nutriment. The flesh is bright orange, but, though delicious to the taste, and very much sought after, is difficult of digestion.

SALONICA, OR SALONIKI, OR SALONICHI (anciently Therma; afterwards called by Cassander Thessalonica); a city of European Turkey, in Macedonia, at the north extremity of a gulf, to which it gives name; anciently Thermaic gulf; 272 miles west of Constantinople; lon. 22° 56′ E.; lat. 40° 38′ N.; population, 70,000; 35,000 Turks, 20,000 Greeks, 12,000 Jews, and 3000 Franks. It is the residence of a pacha of three tails, and of a Greek archbishop, has an excellent commercial position, and, of the towns of European Turkey, is second only to Constantinople in point of commerce.

It is pleasantly situated, being built on the declivity of a hill; and the approach to it from the sea is very imposing. The domes and minarets of mosques, together with other buildings, environed with cypresses, give it an air of splendour, but, like other Turkish towns, its interior by no means corresponds with its external magnificence. It is situated in the vicinity of a fertile district, and exports cotton, tobacco, corn, and wool. The ancient walls are nearly entire, and are five or six miles in circuit; but within them are many void spaces. Of the remains of antiquity the most remarkable are the *propylæa* of the ancient Hippodrome. The whole sculpture is in marble, and is considered among the finest pieces of art which have escaped the ravages of time. To the early Christians in this city, St Paul addressed two epistles.

SALOP, COUNTY OF. See *Shropshire.*

SALSAFY (*tragopogon porrifolius*). This plant, which is often cultivated in gardens for culinary purposes, is sometimes called *vegetable oyster,* from a similarity in the taste of the root to the flavour of that fish. It belongs to the *compositæ*, and is allied to the endive and dandelion; the root is long, white, tapering, and fleshy; the stems upright, two or three feet high, smooth, striated, hollow, and branching; the leaves are alternate, embracing the stem, narrow, and long; the flowers are solitary and terminal, situated upon swelling peduncles; the involucre or common calyx consists of several lanceolate, very acute and equal leaflets, much longer than the corollas; the corollas are violet purple. It grows wild in the south of Europe. The roots form a light and wholesome aliment, and are cooked in various manners. The mode of cultivation is, in every respect, similar to that of the carrot. Many prefer the root of the *scorzonera Hispanica*, a plant somewhat resembling the former, but with yellow flowers. The root of this last is carrot-shaped, about as thick as one's finger, tapering gradually to a fine point, and thus bearing some resemblance to the body of a snake; hence the name of *viper's grass.* The outer rind being scraped off, the root is steeped in water in order to abstract a part of its bitter flavour, and is then boiled or stewed in the manner of carrots or parsneps. The roots are fit for use in August, and keep good till the following spring. Its culture is the same as that of the salsafy, and it is a native of the same part of the globe.

SALSETTE; an island on the western coast of Hindostan, formerly separated from Bombay by a strait 200 yards wide, across which, in the year 1805, a causeway was carried. It is eighteen miles long by fourteen broad, and is well adapted for the cultivation of sugar, cotton, hemp, indigo, &c.; but it has hitherto been kept in a state of nature, for the purpose of supplying Bombay with wood, charcoal, and sea salt, of which there is a considerable manufactory. Salsette is remarkably rich in mythological antiquities; and the remains of reservoirs, with flights of stone steps round them, and the ruins of temples, &c., indicate a former state of prosperity and extensive population.

SALT. This term was originally employed to denote *common salt,* but was afterwards generalized by chemists, and employed by them in a very extensive and not very definite sense. They understood by it any body which is sapid, easily melted, soluble in water, and not combustible; or a class of substances midway between earths and water. Many disputes arose concerning what bodies ought to be comprehended under the designation, and what ought to be excluded. Acids and alkalies were allowed by all to be salts; but the difficulty was, to determine respecting earths and metals; for several of the earths possess all the properties which have been ascribed to salts, and the metals are capable of entering into combinations which possess saline properties. In process of time, however, the term *salt* was restricted to three classes of bodies, viz. *acids*, *alkalies*, and the *compounds* which acids form with alkalies, earths, and metallic oxides. The two first of these classes were called *simple salts;* the salts belonging to the third class were called *compound* or *neutral.* This last appellation originated from an opinion long entertained by chemists, that acids and alkalies, of which the salts are composed, were of a contrary nature, and that they counteracted one another; so that the resulting compounds possessed neither the properties of acids nor of alkalies, but properties intermediate between the two.

Chemists have lately restricted the term *salt* still more, by tacitly excluding acids and alkalies from the class of salts altogether. At present, then, it denotes only the compounds formed by the combination of acids with alkalies, earths, and metallic oxides, which are technically called *bases.* When the proportions of the constituents are so adjusted that the resulting substance does not affect the colour of infusion of litmus, or red cabbage, it is then called a *neutral salt.* When the predominance of acid is evinced by the reddening of these infusions, the salt is said to be acidulous, and the prefix *super*, or *bi*, is used to indicate this excess of acid. If, on the contrary, the acid matter appears to be in defect, or short of the quantity necessary for neutralizing the alkalinity of the base, the salt is then said to be with excess of base, and the prefix *sub* is attached to its name.

In the British chemical schools, it is now common to classify the salts in the following orders:

Order 1st. The oxy-sals. This order includes no salt in which the acid or base, is not an oxydised body. A curious law was observed, by Gay Lussac, to obtain among the salts of this order. Since all the powerful alkaline bases, with the exception of ammonia, are protoxides of an electro-positive metal, one equivalent of an acid will combine with one equivalent of such a base, and form with it a neutral salt. Now, if we divide the order into families, arranged according to the acid, as sulphates, nitrates, &c., it follows that in each family the oxygen of the salt must bear a constant ratio to the oxygen of the base; thus, since one equivalent of sulphuric acid contains three atoms of oxygen, and one equivalent of nitric acid five, we have the ratio of the oxygen of the acid to the base in the neutral proto-sulphates as three to one, and in the neutral proto-nitrates as five to one. Should the base pass into a higher state of oxidation, as to the state of binoxide, then will it be disposed to unite with two equivalents of the acid, that is, twice the quantity of oxygen forming a bi-salt, still preserving the same ratio of oxygen as in the proto salts of the same acid and base. This order of salts comprehends the sulphates, double sulphates, sulphites, hyposulphites, hyposulphates, nitrates, nitrites, chlorates, iodates, phosphates, pyrophosphates, metaphosphates, arseniates, chromates, borates, and carbonates.

Order 2nd. The hydro salts. This order includes no salt the acid or base of which does not contain hydrogen. In this order the hydrochlorides are not included, since the action of the hydrochloric acid acts upon metals and oxides of metals through the agency of the chlorine. The same remark holds with the hydriodic and other hydracids. The only salts included in this order are in fact compounds of the hydracids with ammonia and phosphuretted hydrogen. In some other salts where hydracids are found, the hydracid acts rather as an electropositive ingredient or base than as an acid, and such salts are therefore placed under a different order.

Order 3d. Sulphuric salts. This order includes no salt, the electropositive or negative ingredient of which is not a sulphuret. The salts of this order are double sulphurets, such as the hydrosulphurets of potassium, sodium, calcium, &c.

Order 4th. The haloid salts. This order includes no salt the electropositive or negative ingredient of which is not *haloidal.* The salts of this order are double salts, and one or other of the ingredients must be analogous to sea salt, such as the hydrogochlorides, aurochlorides, oxychlorides, double iodides, silica fluorides, &c.

As almost every acid unites with every base, and sometimes in several proportions, it follows that the number of salts must be immense. Several thousands are already known, although not above thirty were believed to exist fifty years ago. The early names of the salts, so far as these bodies were known to chemists, were wholly destitute of scientific precision. At present, however, they are universally designated according to the nomenclature of Morveau. The name of each salt consists mainly of two words, one generic, the other specific. The generic word precedes the specific, and is derived from the acid; the specific comes from the base. For example, a salt consisting of *sulphuric acid* and *soda*, is spoken of generically under the name of a *sulphate*, and specifically, by adding the name of the base; thus *sulphate of potash.* The termination *ate* corresponds with the acid whose termination is in *ic*, and the termination *ite* with the acid whose termination is in *ous;* thus *sulphuric* acid gives *sulphates; sulphurous* acid, *sulphites.* There are some acids containing less oxygen than those that terminate in *ous:* in such case, the word *hypo* is prefixed; thus we have *hypo*-sulphurous acid, *hypo*-nitrous acid, giving also salts that are called *hypo*-sulphites, and *hypo*-nitrites. When the salt is a compound of one atom, or proportional of acid with one of base, it is distinguished simply by the words denoting the acid and the base, without the addition of any prefix. If the salt contains *two* atoms of acid united to *one* atom of base, the Latin numeral adverb *bis* or *bi* is prefixed. Thus *bisulphate of potash* is a salt composed of two atoms sulphuric acid and one atom potash. Were there three, four, &c., atoms acid, the numeral adverbs *ter, quater*, &c., would be prefixed. Thus *quater-oxalate of potash* means a compound of four atoms oxalic acid and one atom of potash. When two atoms of base are combined with one atom of acid, this is denoted by prefixing the Greek numeral adverb *dis.* Thus *diphosphate of potash* means a compound of two atoms potash with one atom phosphoric acid. The prefixes *tris, tetrakis*, &c., indicate three, four, &c., atoms of base with one atom of acid. Salts of this description were formerly termed *sub-salts;* at least in those instances where an alkaline reaction was produced upon test-liquors from the excess of base.

We have stated above that salts are at present understood to be compounds only of acids and bases. The discoveries of Sir H. Davy, however, require us to modify this generally received definition. Many bodies, such as common salt and muriate of lime, to which the appellation of *salt* cannot be refused, have not been proved to contain either acid or alkaline matter, but must, according to the strict logic of chemistry, be regarded as compounds of chlorine with metals. Such compounds, possessing, for the most part, the properties of solubility in water, and sapidity, are to be included under the general name of salts. They are denominated *chlorides, iodides*, and *bromides*, of the metals, according to the particular constitution of each. Thus the compound of chlorine and calcium, formerly known as muriate of lime, is called the *chloride* of calcium. The solubility of salts in water is their most important general quality. In this menstruum they are generally crystallized; and by its agency they are purified and separated from one another, in the inverse order of their solubility. The determination of the quantity of salt which water can dissolve, is not a very difficult process. It consists in saturating the water exactly with the salt, whose solubility we wish to know, at a determinate temperature, weighing out a certain quantity of that solution, evaporating it, and weighing the saline residue. We shall give the results of some experiments upon the solubility of a few salts.

Sulphate of Soda.

Temperature.	*Salt soluble in* 100 *parts of water.*	
	Anhydrous.	Crystallized.
0,00°	5,02	12,17
11,67	10,12	26,38
17,91	16,73	48,28
28,76	37,35	161,53
30,75	43,05	215,77
32,73	50,65	322,12
40,15	48,78	291 44
50,40	46,82	262,35
59,79	45,42	
70,61	44,35	
84,42	42,96	
103,17	42,65	

Hence it appears that the solubility of sulphate of soda follows a very singular law. After having increased rapidly to about the temperature of 33°, where it is at its maximum, it diminishes to 103,17°; and at that point it is nearly the same as at 30,5°.

Solubility of Chloride of Potassium.

Temperature.	Salt dissolved in 100 water.
15,64°	43,50
49,31	55,63
74,89	65,51
105,48	77,89

Solubility of Chloride of Sodium (common salt).

Temperature.	Salt dissolved in 100 water.
13,89°	35,81
16 90	35,88
59,93	37,14
109,73	40,38

Solubility of Sulphate of Magnesia (Epsom salt).

Temperature.	Salt dissolved in 100 water.
14,58°	103.69
39,86	178,34
49,08	212,61
64,35	295,13
97,03	644,44

Solubility of Nitrate of Potash (Nitre).

Temperature.	Salt dissolved in 100 water.
0,00°	13,32
5,01	16,72
11,67	22 23
17,91	29,31
24,94	38,40
5,13	54,82
45,10	74,66
54 72	97,05
65,45	125,42
79,72	169,27
97,66	236,45

For the chemical, natural, historical, and economical history of the most important salts, see the articles upon their respective bases, as *Lime*, *Soda*, &c.

SALT, HENRY, born in Litchfield, and educated in the grammar-school of that town, was sent to London, and placed under the tuition of an artist, but had not been long with him, before lord Valentia made him an offer to take him, on his projected journey to India; and Mr Salt accompanied him to India as his draftsman. During his travels in that country, and up the Red Sea, and through Abyssinia back to England, they were absent four years; and, on their return, lord Valentia published his travels, in three volumes quarto, splendidly ornamented with plates, from the pencil of Mr Salt. The Account of Abyssinia was written by Mr Salt, who was employed to carry presents to the emperor of Abyssinia. Mr Salt, on his return, published twenty-four Views taken in India, the Red Sea, Abyssinia, &c., folio (1809); and, in 1814, an account of a Voyage to Abyssinia, and Travels in the Interior of that Country, quarto. This was the narrative of a second journey which Mr Salt made to that country, on his return from which he was appointed English consul-general in Egypt, where he engaged in active researches into the antiquities of that country. He died, near Alexandria, in 1827.

SALTCOATS; a seaport town in Ayrshire, Scotland, situated about 32 miles from Glasgow. About two hundred years ago, Salt-cots, or Saltcoats, consisted of only four little cottages or cots, inhabited by as many families, who gained a livelihood by making salt in kettles; but at the beginning of the last century, a harbour being erected for shipping coal from the great coal tract which pervades the neighbourhood, the little hamlet began to assume the appearance of a village, but it is only in recent years that it has risen to any note. About the year 1700, the place becoming the property of Sir Robert Cunningham, he erected the harbour to facilitate the export of coal; and he further built several large pans for the manufacture of salt, of which a very great quantity has been made here. The trade of ship-building was carried on also with success; and in the twenty-six years, ending in 1790, there were built no fewer than sixty-four vessels of the aggregate tonnage of 7095, value upwards of £70,000 sterling. Since that period the trade of the port has considerably increased. The exportation of coals to Ireland forms a chief branch of commerce; and there are some hundreds of looms in the town employed in weaving for the Paisley and Glasgow manufacturers. Population in 1821, 3413; in 1831, not specified.

SALTPETRE. See *Potash*.

SALT-WATER BATHS; those which are taken in the water of the salt-springs, approach in virtue to the sea-baths. They are used chiefly in scrofulous and cutaneous disorders, inveterate gout and syphilis, lameness, rheumatism, tendency to catarrhs, &c. The daily repeated inspiration of the air near the salt-works is also beneficial in some complaints of the lungs. Even the drinking a small quantity of the brine, if not too strong, is of some use in the above mentioned complaints. These baths may be easily established wherever there are inland salt-works. There are several in Germany, much frequented. See John C. Reil, *On the Use and Application of the Brine-Baths* (Halle, 1809), and Tolberg's *Experiments on the use of Brine-baths* (Madgeburg, 1811), both in German. For *Sea-bathing*, see that article.

SALUTATION; the signs which custom has rendered common, for expressing to others, in our intercourse with them, our esteem, love, submission, or good will. Greeting (in German, *gruss, grussen*), is derived from the Low German *groten*, to make great: thus God greet you, means, God make you great—bless you. Salutation sometimes consists of certain gestures. Sometimes an express assurance, or wish is added to these mute signs of feeling. The difference in the forms of salutation often extends so far, that one nation considers that a mark of rudeness which another esteems a mark of civility In most German countries, it is an act of politeness to kiss the hands of ladies; but, in Italy, this is regarded as a mark of familiarity, which is permitted only to the nearest relations. On the contrary, the Russian ladies allow not only the hand to be kissed, but even the forehead, and would consider themselves insulted by the omission of this ceremony. Instead of the customary salutation in the Protestant countries of Germany,—Good morning, Your servant, &c.,—the German Catholic salutes in the manner prescribed by the pope Benedict XIII. (1728),—Praised be Jesus Christ; to which the answer is, For ever, amen. The miner's salutation is, Good luck to you (*Glück auf.*) The military salutations which were introduced among the Germans in the beginning of the sixteenth century, consist in touching the hat or cap, lowering the standards and the sword, or raising the musket. Vessels, when meeting, salute each other by a discharge of cannon, by striking the flag, or by the cheers of the sailors, &c. If we express our esteem for persons of distinction, by bowing, and uncovering our heads, the Russian throws himself on the ground before his master, clasps his knees, and kisses them. The Pole bows to the ground, and the Bohemian kisses at least the gown of any one for whom he wishes to express his profound respect.

Mutual contact is regarded among almost all nations as the expression of friendly sentiments. The pressing of hands, embraces, and kisses, are among other nations also, as well as those of Europe, marks of esteem and love. Some nations, in saluting, touch other parts of the body. The Laplanders, for instance, press their noses firmly together. In one of the larger Cyclades, persons reciprocally moisten each other's hair; and the Franks are said to have pulled out a hair and presented it to the person saluted. The Turk crosses his hands, places them upon his breast, and bows. The salutation of the Hindoos in Bengal consists in touching the forehead with the right hand, and bending the head forwards. They first place the right hand on the breast with a profound inclination, then touch the ground, and finally the forehead with the same hand. At the same time, they call themselves the most humble slaves of him whom they salute. The inhabitants of the Manillas bend the body profoundly, place their hands upon their cheeks, raise one leg, and bend the knee. The inhabitants of Lamurzec, in the Pelew islands, seize the hand, or even the foot of the person whom they wish to salute, and rub their face with it. In the island of Sumatra, the saluting person bows, begs the left foot of him whom he addresses, kneels on the ground, and applies this foot to his crown, forehead, breast and knee: finally, he touches the ground with his head, and remains for some moments stretched out on his belly.

The salutations in the East generally bear the stamp of a slavish mind. The very ancient custom of throwing one's self on the ground before persons of distinction, and repeatedly kissing their feet, has continued to the present time. At an entertainment in Persia, the host goes a considerable distance to meet his guests, bids them welcome with the most respectful compliments, then returns hastily to the door of his house, and waits their arrival to repeat the same demonstrations of respect. In China, if two persons meet on horseback, the inferior in rank dismounts from his horse before the superior, and remains standing until he has passed. Some salutations are also peculiar to men, and others to women. When acquaintances meet, they join their hands upon their breasts, or above their heads, bend their head a little, and say *Tsin, tsin*—a compliment without any particular signification. In saluting persons to whom they owe more respect, they clap their hands, then raise them, and finally let them sink down to the ground. Friends who meet after a long separation, fall repeatedly upon their knees, and bend their heads to the ground, exclaiming, at the same time, *Na fo?* (Has all passed happily?) or, *Yung fo* (Happiness is painted upon thy countenance). Women salute each other with the words *Van fo* (May all happiness be with you); but they are not allowed to salute men. Children fall on their knees before their parents, and servants before their master or mistress. In Japan, the inferior of two persons saluting takes off his sandals, puts his right hand into his left sleeve, permits his hands, thus crossed, to sink slowly upon his knee, passes the other person with short, measured steps, and a rocking motion of the body, and exclaims, with a fearful countenance, *Augh! augh!* (Do not hurt me!) In Siam, the inferior throws himself on the ground before his superior. The latter then sends one of his attendants, who are very numerous in the case of persons of distinction, to examine whether he has eaten, or carries with him any thing of an offensive smell. If this is the case, he receives a kick from the superior, and is compelled to retire immediately; if otherwise, the servant lifts him up. Women, even when advanced in age, are saluted with the names of the most beautiful and most precious objects, but not without the additional word *young;* as "young diamond," "young gold," "young heaven," "young flower," &c. If friends wish to express their mutual attachment, they scratch their hand slightly, and reciprocally suck a drop of blood from the wound. In Ceylon, when persons salute, they raise the palm of the hand to the forehead, and make a low bow. Before a superior they throw themselves upon the ground, continually repeating his name and dignity, while the superior very gravely passes on, and hardly deigns to utter a word of reply. The greeting of the common Arabian is *Salâm aleikum* (Peace be with you),—a salutation which has been long in use among the Jews. At the same time, he places his left hand upon his breast, as a sign that this wish comes from his heart. The reply is, *Aleikum essâlam* (With you be peace). But Arabians of distinction embrace each other two or three times, kiss each other's cheeks, and inquire two or three times after each other's health; at the same time, each kisses his own hand. The Arabians of the Desert shake hands six or eight times. In Yemen, persons of distinction, after a long refusal, allow their fingers to be kissed. The Abyssinians and other nations fall on their knees, and kiss the ground. Several negro nations take each other's hands, and pull the fingers till they crack. The negroes of Sierra Leone bend the right elbow, so that the hand touches the mouth; the person saluted does the same; they then put their thumb and fore-finger together, and withdraw them slowly. Other negroes snap their fingers in meeting each other, pull the comb out of their hair, and replace it. In Lower Guinea, the saluting person seizes the fingers of the saluted, brings them into a particular position, presses them, cracks them hastily, calling, *Akkio, akkio* (Thy servant, thy servant). On the Gold coast of Upper Guinea, friends embrace each other, join the fore-fingers of their right hands until they crack, bend their heads, repeating *Auzi, auzi* (Good day, good day). Persons of distinction, after cracking the fingers, exclaim, *Bere, bere* (Peace, peace). If the Mandingoes salute a female, they take her hand, raise it to their nose, and smell it twice. Mr Snellgrave, an Englishman, with his companions, was saluted by a messenger of the king of Dahomey, attended by 500 negro soldiers, in a very novel manner. The officers of the corps approached their English guests with drawn swords, which they brandished over their heads with curious gesticulations and motions. They then placed their swords upon their bodies, and, after a repetition of these ceremonies, the messenger presented them his hand, and drank to their health. In Morocco, foreigners are saluted by the Moors, on horseback, in a manner which may well startle those not accustomed to it. The Moor rides full speed towards the stranger, as if about to run him down; he then suddenly stops, and discharges his pistol over the head of the person. Persons of equal rank salute each other nearly in the European way. They shake hands, and kiss each other's face and beard, particularly if they are friends. The Egyptians extend their hands, place them upon their breast, and bend their heads. The greatest act of politeness is to kiss their own hand, and afterwards place it upon their heads. They only kiss the hand of men of distinction, not of women. Inferior officers hold the stirrup of their superiors, mounting on horseback. In the divan, the inferior takes off the slipper of the superior, places it by his side, and receives the same salutation from the latter. In other countries of Africa, people take off their clothes, fall on their knees, bend their heads to the ground, and cover their head and shoulders with sand. The Ethiopians seize the right hand of him for whom they wish to show respect, and raise it to their mouth. They even take his sash and tie it round their waist, so that he remains for some time half naked.

The salutations between the different tribes in the north-west of America are very ceremonious. If two hordes of these savages meet, they stop at the distance of twenty or thirty steps, throw themselves on the ground, and remain for some moments in this position. The two eldest of each party then advance and relate very circumstantially the dangers they have encountered. As soon as they have finished their relations, they all begin to sigh. These sighs are finally changed into a horrible yell, in which the young girls, particularly, endeavour to surpass the others of the tribe. With these affecting manifestations of sympathy both parties approach, but each sex separately. Tobacco pipes are handed about, and their affliction is soon changed into merriment. The manner in which the inhabitants of South America salute each other; is short. Their address is, *Ama re ka* (Thou), and the answer, *A* (Yes). The savage of Louisiana territory, when saluting a person of distinction, begins a loud howl. In the hut he repeats the salutation, holding his hands above his head, and howling three times. He returns thanks with another howl, when the superior invites him, with a low sigh, to sit down. In Otaheite, and particularly in the Society and Friendly islands, persons touch the ends of each other's noses. This salutation is returned by each rubbing the hand of the other on his own nose and mouth. The Otaheitan presents a person whom he chooses for a friend, sometimes with a part of his dress, sometimes with the whole. The inhabitants of New Guinea cover their heads with leaves. This action is also regarded as a sign of peace.

SALUZZO; formerly a marquisate, which, after a long dispute between France and Savoy, was finally confirmed to the latter (1601), in exchange for Bresse and Bugey. It lay between Dauphiny and Nizza, and now forms a province of the Sardinian monarchy. The capital, of the same name, lies near the Po, and has a population of 10,150. The house of the marquises of Saluzzo was celebrated in the middle ages, and there are at present branches of it in France (Saluces), Naples, and Austria.

SALVADOR, ST, OR BAYAMO; a town of Cuba, near the southern coast, 520 miles south-east of Havana, on the right bank of the river Bayamo, which forms a port at its mouth. The town is about twenty miles distant from the port. Lon. 76° 55′; lat. 20° 23′. Population, 7486; 2875 of which are whites, 3139 free persons of colour, and 1472 slaves.

SALVADOR, ST. See *Bahia*.

SALVAGE; a recompense allowed by law for the saving of a ship or goods from loss at sea, either by shipwreck or other means, or by enemies or pirates. See *Prize*.

SALVATOR ROSA. See *Rosa*.

SALVI, GIAMBATTISTA. See *Sassoferato*.

SALZBURG; a city of Austria, on the Salza, sixty-three miles south-east of Munich, the chief place of the circle of the same name; lat. 47° 48′ N.; lon. 13° 1′ E. It contains, besides the cathedral, sixteen other churches, six hospitals, and several literary institutions. The principal article of manufacture is hardware. The cathedral is more remarkable for solidity than elegance. The university was converted (1809) into an academy. The most striking feature of the place is its romantic situation amidst lofty mountains. The citadel stands in a bold and commanding situation, and one of the gateways is cut through a solid rock, being 300 feet in length, thirty feet in height, and twenty-four in breadth. Population, 13,000.

SALZMANN, CHRISTIAN GOTTHILF, a distinguished teacher at Schnepfenthal, was born, in 1744, in the territory of Erfurt, where his father was a Protestant preacher. He himself was a clergyman in Erfurt, when the works of Rousseau and Basedow directed his attention more particularly to the education of his own children. In 1778, he published Entertainments for Children, and Friends of Children, and, in 1780, his excellent *Krebsbüchlein*, in which he exposes, with keen irony, the prevalent mistakes in education. Basedow invited him, in 1781, to take part in his *Philanthropin*, an establishment for education, at Dessau. He published his Sermons, &c. at this institution, from 1781 to 1783, in 4 small vols. In 1783, he began, and in 1788 finished. his novel *Karl von Karlsberg*, or, *on Human Misery*, in 6 vols. In 1784, he established in Schnepfenthal (in Gotha), his own institution. His prudent management, and the zealous co-operation of able assistants, made it prosper. He began with his own children, and a few others; but pupils were soon sent to him, not only from all parts of Germany, but also from many foreign countries. Some of these pupils were of very high rank. In 1797, he published his Heaven on Earth, which gained him the favour of many parents. In 1803, the number of his pupils was sixty-one. In 1788, he began to publish the Thuringian Messenger, a journal which was much read. A number of books on education, by him and his associates, contributed much to the changes which took place in education. His institution was distinguished, moreover, for the health of the pupils, and the development of their physical powers, which was owing to its salubrious situation, to the attention paid to diet, and to the gymnastics introduced there by Guts-Muths. (q. v.) Six of his associates became his sons-in-law, and two of his sons were among his associates. His daughters also taught. The wars in Europe, and the increasing number of similar institutions, reduced the number of his pupils, so that, in 1807, he had but thirty-six children under his care. Salzmann died in 1811, having effected much good as an instructor and a popular author. Clearness and simplicity, piety and practical good sense, are the prominent features of his writings. He was distinguished for firmness, sagacity, and unceasing activity, and was honoured by thousands whom he had trained in the ways of virtue and wisdom. His institution continues under his son, Charles Salzmann.

SAMARCAND; a city of Bucharia, situated in a fertile and delightful region, 200 miles east of the city of Bucharia; lat. 39° 30′ N.; lon. 68° 50′ E. Its population is about 50,000. It is surrounded with a double wall, contains numerous fountains, 250 mosques, with forty madrases, or religious schools (see *Mosques*), a palace, several bazars, &c. Samarcand has been, for two centuries and a half, one of the great marts of the Asiatic inland commerce. It was anciently called *Marakanda*, and was the capital of Sogdiana, which lay on the northern frontiers of the Persian empire. Alexander is thought to have pillaged it. It was taken by Gengis Khan in 1220, and, under Timour, or Tamerlane became the capital of one of the most extensive empires in the world. Tamerlane, towards the end of the fourteenth century, established a Mohammedan university here, and Samarcand became the seat of Asiatic learning. See *Bucharia*.

SAMARITANS. After the fall of the kingdom of Israel, the people remaining in its territory, consisting of the tribes of Ephraim and Manasseh, mingled with some Assyrian colonists, were called by the Greeks Samaritans, from the city of Samaria, around which they dwelt. When the Jews, on their return from captivity, rebuilt the temple of Jerusalem, the Samaritans desired to aid in the work; but their offers were rejected by the Jews, who looked upon them as unclean, on account of their mixture with heathens; and the Samaritans revenged themselves by hindering the building of the city and temple. Hence the hatred which prevailed between the Jews and Samaritans, which, in the time of Jesus, when the latter were confined to a narrow strip of country between Judæa and Galilee, prevented all intercourse between them, and still continues. Having never become independent, the Samaritans have shared the fate of the country which they inhabit, and have suffered so much from the oppression of the Turks, that not only the colonies of them in Egypt (which were in a flourishing condition in the seventeenth century) are now extinct, but the number of them in Naplousa (the ancient Sichem), and in Jaffa, the only places which contain Samaritans, was, according to De Sacy, not more than 200 in 1811. In their religious opinions and usages, they resemble those Jews, particularly the Caraites, who reject the Talmud, and differ from the rabbinical Jews, in receiving only the Pentateuch and book of Joshua, and in rejecting all the other portions of the Bible, as well as the Talmud, and rabbinical traditions. In their manners, rites, and religious ceremonies, they adhere strictly to the Mosaic law. Instead of the temple at Jerusalem, they worship on mount Gerizim, in Samaria, where, in more prosperous times, they celebrated their festivals, and offered sacrifices. The worship of one God, circumcision, the purifications, and feasts (except the Purim and the feast of the dedication), they have in common with the Jews. They believe in the existence of angels, in a resurrection, and future retribution, and expect the coming of a Messiah, in whom they look only for a prophet. Their priests are of the tribe of Levi, and are treated as superiors. On account of their poverty, their only sacrifice is a lamb, on the feast of Pentecost. In the synagogue, the Aramaic Samaritan dialect is used, but they generally speak Arabic, and they are distinguished by a white turban. They support themselves by mechanical labour and by money dealings. They avoid any connexions with other sects, and marry only among their own nation. Each man is allowed two wives on his first marriage; but on the death of one of them, he cannot marry again. In case both of them die, he is suffered to have one wife. This remnant of a declining race possesses one of the oldest, if not the oldest manuscript of the Pentateuch known to be extant. See *Bible*.

SAMIEL. See *Simoom*.

SAMNITES; the inhabitants of the ancient province of Samnium, in Lower Italy, bordering on the country of the Peligni, Marsi, Campanians, Lucanians, and Apulians. In early times, they occupied the largest part of that country. They are described in Roman history as a people fond of war and of liberty, who were brought completely under the Roman yoke, after long and bloody wars, which continued, with a few interruptions, nearly seventy years. The first hostilities between the two states commenced in the year of Rome 411, when the Campanians, oppressed by the powerful Samnites, sought the aid of Rome. Valerius Corvus, the Roman consul, marched against the Samnites, and forced them to retreat, after a bloody engagement, to their own borders. At the same time, another Roman army had invaded the country of the Samnites, and, after a doubtful contest, gained the victory by the heroic decision of the young Publius Decius Mus. The vanquished nation was obliged to sue for peace; but maintained it only till they recovered from their defeat. For in the year 426 a new war broke out, more bloody than the preceding, which was prosecuted the more obstinately, as the other states in Lower Italy came to the aid of the Samnites. Though the Romans were generally victorious, yet in the year 433, their army becoming involved in a narrow pass near the city of Caudium, and being surrounded on every side by the forces of the enemy, was obliged to submit to the disgrace of passing under the yoke. The senate, however, rejected the peace concluded with the enemy by the captive consuls, delivered up the authors of it to the Samnites, and sent other commanders to prosecute the war. The valiant Papirius Cursor succeeded in revenging the disgrace which his countrymen had suffered by inflicting a similar ignominy upon the enemy. The war was still prosecuted with fury; for the Samnites were vigorously supported by their neighbours, who feared the power of Rome; and even Pyrrhus, the warlike king of Epirus, at the entreaty of the afflicted city of Tarentum, took up arms against the Romans. But the consuls, Papirius Cursor, Q. Fabius Maximus, Pub. Decius Mus, Curius Dentatus, Caius Luscinius Fabricius and others, triumphed repeatedly over the enemy, who fought with desperation; and, after the most fatal defeats, and the entire devastation of their country, the Samnites, together with the other nations which had assisted them, found themselves obliged to sue for peace. In 482, they obtained it. When the Italian allies of Rome revolted against her, in the time of Sylla, the Samnites once more rose against their oppressors, and fought with desperation. But Sylla entirely subdued them, and commanded that every Samnite should be put to death. Three days after the battle he ordered 4000 of them, who had been taken prisoners, to be put to death, on the Campus Martius. The few that remained lived from that time scattered in villages. The Samnites cultivated various arts and manufactures; for the proximity of the refined Greeks in Lower Italy had a very beneficial influence upon them. Even their laws and constitution were borrowed in a great degree from the Greeks. Their form of government was democratic. At the commencement of a war they were accustomed to choose a common general.

SAMOGITIA; a country of Europe, bounded by Courland, Prussia, and Lithuania, formerly a province of Poland, now forming the government of Wilna, in Russia. It was the first of the Polish provinces incorporated with Russia, that raised the standard of insurrection in 1831. See *Russia*.

SAMOIDES. See *Samoyedes*.

SAMOOM. See *Simoom*.

SAMOS, a Grecian island in the Archipelago, opposite to the ruins of Ephesus and the promontory of Mycale, the birth-place of Pythagoras, as is generally supposed, was the most important and powerful island of the Ionians. From the reign of Polycrates, 566 B. C., this island is celebrated in history for the worship of Juno, who was born here, and was also distinguished for its skilful seamen and enterprising merchants, who even sailed as far as the mouth of the Guadalquiver through the Pillars of Hercules (now the straits of Gibraltar). The fleets of the rich Samians often made the Persians tremble. At Samos were first cast statues in bronze. Samos lost the last shadow of republican freedom under the reign of the emperor Vespasian (70 A. D.). In the middle ages, this island was alternately governed by the Arabs, Venetians, Genoese, and Turks: to the latter it finally became tributary, under an aga of the capudan pacha. It is 175 square miles in extent, very fruitful and mountainous, and besides the capital city, Cora, near which the ancient Samos and the temple of Juno (Heræum) lie in ruins (now called the *Columns*), it contains three other cities, Vahti, Carlovassi, and

Fournis. During the Greek revolution, owing to the many refugees from Natolia, Scio, Ipsara, and other places, the island contained about 50,000 Greek inhabitants (where there were formerly only 12,000). Near Samos lies the island of Icaria (Nicaria), inhabited by 300 Greeks. This island is celebrated as being the place near which Icarus, the son of Dædalus (q. v.), fell into the sea, and where his dead body floated on the shore; whence the name. In 1821, the inhabitants of Samos took up arms at the report of the execution of the patriarch. They fortified the harbour on the Little Bogas, to guard against an attack from the coasts of Natolia, and soon collected about 10,000 men. From that time the Samians continually attacked the neighbouring coasts of Asia, and Scala Nuova in particular. July 16, 1821, the island was attacked by the Turks, but without success. The Turks, in August, 1824, again made a more furious attack; but the Greek fleet, commanded by Miaulis, repulsed the Turkish. Samos has lately been visited by an earthquake of an extraordinary nature, that produced a large opening in one of the highest mountains of the island, from which suddenly issued an enormous torrent of water, overflowing the country, and making its way to the sea. By degrees, the inundation subsided, and terminated in forming a river, which has its source at the opening formed in the mountain.

SAMOTHRACE; an island in the Ægean sea, not far from Lemnos, on the coast of Thrace, opposite the Trojan territory, and celebrated for its mysteries, the priests of which were at first the Cabiri, and afterwards the Dioscuri. An initiation into these mysteries was supposed to have efficacy in preserving persons from dangers by sea; and it is related of the Argonauts, that, at the suggestion of Orpheus, who was one of the initiated, they were landed at Samothrace. Over these mysteries there rests an impenetrable obscurity, which also extends to the deities that were revered. It appears certain that the Egyptian and Phœnician religious rites and ceremonies were afterwards united and mingled with those of the Greeks, and that, still later, the religious worship of the Samothracians was introduced into Etruria, although the names of the divinities were changed. Nevertheless, out of respect for its mysteries, this island enjoyed, even under the Roman dominion, a certain degree of freedom; and, even after the birth of Christ, these long celebrated mysteries still enjoyed reputation.

SAMOYEDES, or **Samoides**; a nomadic people traversing the immense frozen deserts which extend along the ocean forming the northern boundary of European and Asiatic Russia. They extend from the river Mezen, on the European side, nearly to the Lena on the Asiatic; lon. 40 to 120 E., upwards of 2000 miles; in breadth the territory varies from 300 to 600. The population of this cold, dreary and barren country is not supposed to exceed 20,000. The Samoyedes call themselves Khasova, and are divided into three tribes—the Vanoites on the Petchora and Oby, the Tysia-Igoley on the Mezen, and the Khiruteches in the interior of Siberia. They are of small stature, usually between four and five feet: have a flat, round, and broad face, thick lips, wide nose, little beard, black hair, in small quantity. They live by hunting, are extremely superstitious, and generally peaceable. As they are unacquainted with the art of writing, their traditions are imperfectly preserved only in their songs. When the victorious Russians first became acquainted with them, they had already been chased from their native seats by the Tartars, and separated from their kindred tribes. Their original country is unknown, but they appear to have come from the south. Their principal wealth consists in herds of rein-deer, which supply them with food, clothing, tents, utensils, &c.

SAMP. A word borrowed from the North American Indians, to denote maize, broken coarsely, boiled, and mixed with milk.

SAMPHIRE *(crithmum maritimum)*; an umbelliferous plant, remarkable for its lanceolate, fleshy leaflets, which grows wild along the sea-coast of Europe. Where it abounds, it is used by the inhabitants as a pickle, as an ingredient in salads, or as a potherb. It can be cultivated in gardens upon beds of sand and rubbish, or in pots; and it is useful to furnish the stocks with a supply of salt; for, like other maritime plants, it posseses the power of decomposing sea-water and retaining the soda. The seed is very similar to a grain of barley.

SAMSON, judge of Israel, son of Manoah, a Danite, was born, according to Usher, about 1155 B. C., and was educated, from his birth, according to the commands of an angel, a Nazarite. At the age of eighteen years, he fell in love with a young Philistine girl, whom he married. At the wedding-feast, Samson, who had formerly torn a lion in pieces, and afterwards found a swarm of bees in the carcass, proposed a riddle to the guests, wagering thirty shirts and as many suits of clothes that they could not guess it in seven days: "Out of the eater came forth meat, and out of the strong came forth sweetness." The secret of his riddle being betrayed to them by his bride, Samson reproached them with ploughing with his heifer; but went to Askalon killed thirty Philistines, and gave their clothes to his guests. His wife having, during his absence in his own country, married again, he caught 300 foxes, and, tying them together, tail to tail, with a fire-brand between them, let them loose in the fields of the Philistines. His own countrymen having afterwards delivered him up bound into the hands of his enemies, he snapped the cords asunder, and killed 1000 Philistines with the jaw-bone of an ass. From this period Samson was judge of Israel for twenty years. While he was on a visit to Gaza, the gates of the city were watched by the Philistines, with the intention of killing him as he went out in the morning; but he rose by night, and carried off one of the gates of the city to a distance of twenty or thirty miles. Not long after he fell in love with Delilah, to whom he foolishly revealed the secret of his strength. By cutting off his hair, which was a violation of his obligation as a Nazarite, she deprived him of his peculiar powers, and betrayed him to his enemies, who put out his eyes, and set him to work in a mill with slaves. At a great festival in honour of Dagon, Samson was brought out to furnish sport to the Philistines. But his hair had grown again; and, his vigour having returned with it, he took vengeance on his enemies by pulling down over their heads the building in which they were assembled, and under the ruins of which he also perished with them. Milton has made his death the subject of a drama—Samson Agonistes.

SAMUEL; a prophet, and the last of the judges of Israel. From his youth he was marked out as destined by God to reform the dissolute and irreligious practices of his nation. He grew up devoted to the temple service; and sensible of the faults of his countrymen, he exhorted them, when they were hard pressed by the Philistines, to fear God, and worship him, as their only means of deliverance. His prayers and sacrifices obtained for them the victory; and the office of judge was conferred on him. He governed the people twelve years; and his administration was distinguished by the restoration of the neglected worship of Jehovah. He also gave new vigour to the theocratical institutions of Moses, by the establishment of schools of the prophets. (See *Prophets*.) In his old age, the corruption of his sons, to whom he had transmitted the office of judge, excited discontents among the Hebrews, who demanded a king. Samuel reluctantly yielded to this revolution, but at the same time anointed the king of the general choice, imposing upon him such restrictions as should preserve the old constitution, and reproving him freely when he was guilty of injustice or impiety. But when Saul attacked the priestly office and privileges, Samuel anointed a new king, David. He did not live to see the contest between David and Saul decided; but, even after his death, his spirit, evoked by the witch of Endor, threatened the latter with the divine vengeance. The books of Judges and Ruth, and part of the first book of Samuel, have been attributed to him, but are probably by a later hand.

SAN CARLOS, Joseph Michael de Carvajal, duke of, descended from the old kings of Leon, was born in Lima, in 1771, went to Spain at the age of sixteen, began his military career as colonel in the second regiment of Majorca infantry, of which his uncle was colonel-proprietor, was in the campaign of Catalonia, in the war of 1793, and a volunteer in the Toulon expedition. On the death of his uncle he was appointed chamberlain, and subsequently governor to the prince of Asturias, afterwards Ferdinand VII. His system of education was, however, not suitable to the views of Godoy, whose influence deprived the duke of that post. In 1805, he was invested with the office of major-domo to Charles IV., and in 1807, was appointed to the viceroyship of Navarre. Three months after he had taken possession of his viceroyalty, he received orders to consider himself a prisoner in the citadel. This arrest arose out of a report, that the duke had recommended to the prince to remove the queen-mother from all influence in the affairs of the kingdom, in case of the king's death, who at that time was very ill, and also to bring the prince of peace before the tribunals of his country. During the affair of the Escurial (see *Ferdinand VII.*), he was subjected to various severe scrutinies; and, though liberated at the same time as prince Ferdinand, he was ordered to remove sixty leagues from Madrid, and was prohibited from fixing his residence in Navarre. He resided at Alfaro when the French armies entered Spain. In the mean time, the insurrection in Aranjuez broke out, and prince Ferdinand being placed on the throne, he immediately called the duke about his person, and appointed him grand-master of the household and member of his privy-council. He arrived in Madrid some days before the prince's departure for Bayonne, and accompanied him in that journey. The duke had several conferences with Napoleon on the subject of exchanging the crown of Spain for that of Etruria, and invariably assured him that the prince would not consent to any treaty without enjoying his liberty and being sanctioned by the cortes. The subsequent arrangements, however, which the prince was compelled to enter into, did not detach the duke from his service: he remained with him at Valençay, till, by the order of Napoleon, he was called, with Escoiquiz, to Paris. Suspicions, however, being entertained of the duke and Escoiquiz's influence over Ferdinand, they were separated from that prince; the duke being confined at Lons-le-Saulnier, and Escoiquiz at Bourges. The duke, in his retirement, cultivated his taste for botany, but above all for history, politics, and general literature. When it was determined by Napoleon to reinstate Ferdinand on the throne of his kingdom, he fixed upon the duke of San Carlos as best suited, by his counsels and knowledge of all parties in Spain, to conciliate their regards. He was therefore called to Paris in November, 1813, and afterwards went to Valençay, where long discussions ensued, which ended in the duke's setting out for Madrid, to obtain the consent of the regency to the treaty. He arrived January 16, 1814; but the arrangements made in France were not approved by the regency. In answer to applications for the return of the king to Spain, the duke of Bassano at length consented to the measure, and his majesty set out under the name of count de Barcelona. The duke was the only minister who accompanied the king. The affairs of Spain were at that time under the direction of the regency; and under these circumstances it was deemed prudent to go to Saragossa. The cortes, however, decided not to give up the reins of government, and the king and the duke proceeded to Valencia in April. May 3, San Carlos was appointed, by the king, first secretary of state: and the next day he signed the infamous decree by which a despotism was established. General Freyer, who had been nominated to the ministry of war, declined the place, and the duke accepted it, in conjunction with that of minister of the king's household: the former office he shortly after resigned to general Eguia. The duke set about introducing a system of economy into the kingdom; established a junta of ministers, over whom he presided; took measures for repairing roads, increasing the number of canals, reviving the credit of the national bank; and instituting several academies for the cultivation of the arts and sciences. Notwithstanding these benefits, his enemies were numerous; and, finding them increase in November, 1814, he demanded permission to resign, which the king granted, and don Pedro Cevallos was appointed to succeed him. He was nominated minister to Vienna, in the month of October, 1815; and in 1817 he was recalled and sent to the court of Great Britain in the same quality. In consequence of the troubles in Spain (1822—23), the duke retired to the court of Lucca, by which he was sent ambassador to Charles X., in 1825. He was subsequently named ambassador extraordinary of Spain to the same court, and continued in that station till his death, July, 1828.

SANCTION, PRAGMATIC;

1. The ordinance of Charles VII. of France, drawn up at Bourges, in 1438, conformably to the decrees of the council of Basle, and on which rest the liberties of the Gallican church.

2. The decree of the German diet, at Mayence, in 1439, which sanctioned the same decrees of this council. Both limited the power of the pope, but were altered by subsequent concordates.

3. The instrument by which the German emperor, Charles VI., being without male issue, endeavoured to secure the succession to his female

descendants. He soon induced most of the monarchs of Europe to guarantee it; but the elector of Bavaria, Charles Albert, the next heir to his dominions, refused. This caused the Austrian war of succession, after the death of Charles in 1740. In the peace of Füssen, April 22, 1745, Bavaria acknowledged the pragmatic sanction.

4. Charles III. of Spain, when he ceded the throne of Naples to his third son, and his posterity, in 1759, called the law of succession, which he prepared for this branch of his family, *sanctio pragmatica*.

SAND, CHARLES LOUIS, a student of theology, who murdered Kotzebue, was born October 5, 1795, at Wunsiedel, in the Fichtelgebirge, where his father held a judicial office. In 1812, Sand was sent to the gymnasium of Ratisbon. In 1814, he entered the university of Tübingen, and, in 1815, joined the Bavarian army as a volunteer against the French; but his corps was never brought into action. After peace, he continued his studies in Erlangen, where, in 1817, his most intimate friend was drowned before his eyes, without his being able to render him any assistance. In the autumn of 1817, he went to the university of Jena, where he was a member of the *Burschenschaft* (see *Universities*), but of no other secret or public society. His whole soul was animated by that love of country and liberty, which, ill defined, indeed, in some cases, was then the predominant sentiment of all the noble-minded youth of Germany. Their excitement was great, as, soon after the peace, most of the German governments had shown a decided reluctance to perform the promises which they had made of improving the political condition of their subjects. Besides this, the idea of a union of the German states, so natural to every German who reflects on the quarrels which have torn to pieces his unhappy country, took possession of the minds of the young, and especially of the students: at least, in them it was manifested more openly. The ideas of young men at a university, on the mode of effecting such political changes, must, of course, have been crude, ignorant as they were of life and of political affairs; but their desires were ardent; hundreds burned to do something towards obtaining these ends; and many were ready to sacrifice even their lives in the cause. These young men, we may be allowed to say, were inspired with as true a love of country as ever existed; but the men of mature age, who ought to have regulated their ardour and guided their efforts, were wanting to their duty, and occupied themselves merely with speculations, in which religion and politics were confusedly mingled, and which were founded on erroneous conceptions of ages gone by. At this time, some writers attacked the prevailing excitement with severe ridicule; and, among these, Kotzebue distinguished himself. In free governments, such ridicule would have been little regarded; but in this period of enthusiasm for liberty, kindled by political oppression, it was felt with bitterness. Kotzebue was discovered to be acting at the instigation of the Russian government, which, of course, added to the exasperation. Sand looked upon Kotzebue as an enemy of his country, and a criminal of the blackest dye, whom the political condition of Germany rendered it impossible to punish according to the forms of law, and who was therefore to be regarded as at open warfare with the true lovers of their country, who had a right to destroy him, as the only means left them for protecting their own rights. Having come to this conclusion, he took the deed upon himself, perfectly conscious, at the same time, that he violated the rules of social order, and willing to endure the punishment which was to be expected for such a deed. He was not, however, "made for murder," as he justly said of himself, and could not easily resolve to act on his own conclusions. He struggled for months against his own convictions, and prayed for guidance: at last he resolved that it was cowardly to defer what he deemed an act of duty. On the afternoon of March 9, 1819, he went to Kotzebue's residence in Manheim, delivered a letter to him, and, while he was reading it, pierced him with a dagger, exclaiming, "Here, thou traitor to thy country." Having given him two more blows, he went down stairs; handed a paper, inscribed "Death-blow to Augustus von Kotzebue," to a servant; went into the street. knelt down, and having cried aloud, "Long live my German fatherland!" pierced his own breast, with the words, "I thank thee, O God, for this victory." The attempt at his own destruction is the only part of the transaction which he ever regretted, and never tried to excuse. Kotzebue died soon after. Sand was executed near Manheim, May 20, 1820, aged twenty-four years, after having suffered much from the wounds which he had given himself, and from an operation which had been performed in consequence. He died with perfect calmness. The testimonies of his conduct at all periods of his life, given by his teachers, parents and friends, show that he was always strictly moral, and modest, and of uncommon purity of life. His character was mild and affectionate. He was a good scholar, although not of a rapid or penetrating understanding. His feelings were stronger than his reason. He was a warm and faithful friend, and uncommonly attached to his parents and brothers and sisters, so that his struggle, before he could resolve to commit murder, was intense. Sand's deed is a remarkable phenomenon in the moral world. As the spirit for the regeneration of Germany had manifested itself most strongly among the students and in the newly established gymnasia, on account of the many young men collected there, the latter, in many German states, were closed; and the governments, believing that Sand was merely the instrument of a secret society, commenced active inquiries to discover these secret societies; but they could not be found. It showed, moreover, a very incorrect appreciation of Sand's deed, to suppose that he was but the agent for executing an order. A comparison between him and other persons, whom history records as urged by a mistaken sense of duty to commit murder, as Ravaillac, Charlotte Corday, Staps, would be interesting.—See *Vollständige Uebersicht der gegen Sand geführten Untersuchung* (Stuttgard, 1820)—the publication was not allowed until 1823;—also *Actenauszüge aus dem Untersuchungsprocess über K. L. Sand* (Altenburg and Leipsic, 1821), and Eight more Contributions to the History of Aug. von Kotzebue and C. L. Sand (Mühlhausen, 1821).

SANDA; a small island of Scotland, in the county of Argyle, and on the coast of Kintyre, about a mile and a half long, and half a mile broad. Paterson's Rock, a dangerous sunken reef, lies to the south-east of Sanda.

SANDAL; a kind of covering for the feet, used among the Greeks and Romans, and which we find to be of the highest antiquity.

It consisted of a thick cork sole, covered above and beneath with leather, and neatly stitched on the edge. It left the upper part of the foot bare, and was fastened on by means of straps, crossed over and wound round the ankle. In later times, sandals became articles of much luxury. The higher Catholic clergy wear a costly embroidered sock, which is called *sandal*. A kind of vessel employed in the Mediterranean sea for the purpose of unloading large ships, is also called *sandal*.

SANDAL WOOD (*santalum album);* a low tree, much resembling the privet in its leaves and flowers, but differing widely in its botanical characters. The leaves are opposite, petiolate, smooth, about two inches in length, oblong, and somewhat obtuse at each extremity: the flowers are small. This tree produces the white and yellow sandal woods of commerce, which were formerly thought to be obtained from different trees; but in India, as in a certain degree in all countries, most trees, when large and old, become coloured towards the centre; and this takes place in the sandal tree, the centre of which, with age, acquires a yellow colour as well as great fragrance and hardness. This is the only part of the trunk that is used, being in universal esteem for its fragrance. It is manufactured into light articles of cabinet furniture; and no insect can exist, or iron rust (it is said) within its influence. The dust of this wood is used by the Brahmins to form the pigment with which they give the tilac, or frontal mark, to the god Vishnu; and the oil used in their ceremonies is obtained from the shavings, or at least scented by them. The true sandal wood grows chiefly on the coast of Malabar, and in the East Indian islands.

SANDARACH; a gum resin, which oozes spontaneously from the old trunks of the common juniper *(juniperus communis)*, and which is used in considerable quantities in the preparation of varnish, particularly of one kind, employed by cabinet makers and painters, called *vernix*. In its powdered form, it is known under the name of *pounce*. See *Juniper*.

SANDEMAN, ROBERT, in whom the sect called *Sandemanians* originated, was born at Perth, in Scotland, in 1723. He studied at Edinburgh, and afterwards engaged in the linen trade. On marrying the daughter of the reverend John Glass (founder of the Glassites), he became an elder in his congregation, and soon after published a series of letters, in which he endeavours to show that a justifying faith means nothing more than a simple assent to the divine mission of Christ. This position caused much controversy, and those who adopted it were called *Sandemanians*, and formed themselves into church order, in strict fellowship with the churches in Scotland adhering to the same principles. The chief opinions and practices in which this sect differs from others, are their weekly administration of the Lord's supper, washing each other's feet, &c. In 1764, Mr Sandeman accepted an invitation to New England, where he died in 1771. His sect still subsists in Great Britain. He was author of some other theological tracts besides his Letters on Theron and Aspasio.

SANDPIPER *(tringa);* a genus of shore-birds, allied to the snipe, plover, curlew, and godwit, and included by Linnæus under the order *grallæ*. The bill is as long as the head, or longer, straight or slightly curved, rounded, slender, soft and flexible, without a cutting edge, and enlarged and obtuse at the extremity: it seems to perform many of the offices of a probe, and enables these birds to search in the soft mud for insects, small shells, or worms, which form their accustomed food. Their nostrils are linear, and situated in a groove of the bill. Their tongue is filiform and pointed. The legs are destitute of feathers for some distance above the knee, and the toes are short and incapable of grasping; hence these birds do not perch, but frequent the borders of ponds, rivers and marshes, especially in the vicinity of the ocean, and are often seen coursing rapidly along the strand, following the flux and reflux of the waves. Their wings are long, and their flight powerful. Some species prefer the interior and the vicinity of fresh water, and others almost exclusively inhabit the shores of the ocean. They build their nests in the grass, and the young at birth immediately follow their parents in search of food. At the approach of winter, they all quit the land of their birth, and migrate, in flocks more or less numerous, to warmer climates. They moult twice a year, and their winter plumage is very different from the summer.

SANDRART, JOACHIM VON, a German painter and engraver, chiefly esteemed in the latter capacity, was born in 1606, at Frankfort, and died in 1688. He wrote a work called the German Academy of Architecture, Sculpture, and Painting (1675, seq.)

SANDSTONE is in most cases composed chiefly of grains of quartz united by a cement, which is never very abundant, and often, indeed, is nearly or quite invisible. These grains are sometimes scarcely distinguishable by the naked eye, and sometimes are equal in size to a nut or an egg, as in those coarse sandstones called *conglomerate*, and sometimes pudding-stone or breccia. The cement is variable in quantity, and may be calcareous or marly, argillaceous or argillo-ferruginous, or even siliceous. When siliceous, the mineral often much resembles quartz. The texture of some sandstones is very close, while that of others is so loose and porous as to admit the passage of water. Sometimes, indeed, this rock is vesicular. Some varieties are so solid as to give fire with steel, while others are friable, and may be reduced to powder even by the fingers. Its fracture is always granular or earthy, although it may be at the same time conchoidal or splintery. Some sandstones have a slaty structure, arising from scattered and insulated plates of mica, and have been called *sandstone slate*. Its most common colour is gray or grayish-white, sometimes with a shade of yellow-brown or green, and sometimes it is reddish or reddish-brown. In some cases, the colour is uniform, in others, variegated. In addition to quartz, some sandstones embrace grains of feldspar, flint and siliceous slate or plates of mica. The mica is sometimes in considerable quantities in those friable sandstones which accompany coal. Some sandstones are so ferruginous as to form a valuable ore or iron, containing either an oxide or the carbonate of iron. Sandstone, although decidedly a secondary rock, has been formed at different periods, under different circumstances, and is hence associated with different rocks. Red sandstone is sometimes connected with coal. Sandstone, more particularly in the older formation, sometimes contains metallic substances disseminated through the mass, or in beds or veins. Among these are sulphurets of iron, mercury, lead and copper, pyritous copper, and arsenical cobalt. Various organic remains occur in sandstone, among which are reeds, impressions of leaves, trunks of trees, and shells, both fluviatile and marine. Sandstone, in some of its varieties, is very useful in the arts, and is often known by the name of *freestone*. When sufficiently solid, it is employed as a building stone. In most cases, it may be cut equally well in all directions; but some varieties naturally divide into prismatic masses. Some varieties are used as mill-stones for grinding meal, or for wearing down other minerals, preparatory to a polish. These stones, while rapidly revolving, sometimes burst with a loud and dangerous explosion. When the texture is sufficiently porous, sandstone is employed for filtering water. Some varieties are used for whetstones. Some sandstones absorb moisture, and, by exposure to the changes of the atmosphere, are gradually disintegrated; others become more solid by much exposure. Pudding-stone, or conglomerate, is only a very coarse sandstone. It is composed of siliceous pebbles of quartz, flint, siliceous slate, &c., united by a cement, which is usually siliceous, sometimes both siliceous and ferruginous, and sometimes a little argillaceous. These pebbles vary in size from that of a pea to that of an egg. They are ordinarily rounded or oval; and it is, in fact, chiefly by the more or less rounded form of these pebbles that puddingstone is distinguished from breccia. It is sometimes employed for mill-stones, and some varieties receive a good polish. All true conglomerates must of course be composed of fragments of previously existing rocks. They have, however, been formed at very different periods. A breccia is an aggregate of angular fragments of the same mineral, or of different minerals, united by some cement. Sometimes, however, a few of the fragments are a little rounded.

SANDWICH, a cinque-port and market-town in Kent, sixty-eight miles east by south from London. The town is situated on the river Stour about two miles from the sea, and near the commencement of the Watling Street of the Romans; the streets though irregularly built, are well paved and lighted, and the inhabitants are supplied with excellent water from the river and also from a spring which rises near Eastry, and is brought to the town by a canal three miles long, called the Delf, cut in the reign of Edward I. The river, which is navigable for small vessels only, is crossed by a bridge of two arches, with a swing-bridge in the centre, to allow them to pass without lowering their masts; this bridge connects the town with Stonar and the Isle of Thanet. The port extends from the North Foreland, to the north-east, six miles from the shore in eleven fathoms of water, and to the south as far as the head of Goodwin Sands continuing along for five miles to Sandown Castle; and in a south-west direction to the quay at the mouth of the Gestling. It includes within its jurisdiction as a cinque-port, Fordwich, Sarr, Ramsgate, Deal, Walmer, and Stonar. The foreign trade of Sandwich, is for the most part with Norway, Sweden, and the Baltic, in timber, iron, &c.; and the home trade consists in exporting corn, flour, hops, and seeds, malt, fruit, and ashes. Ship building and rope-making are carried on to a certain extent, but the silk-weaving and woollen manufactures introduced by the Flemings, have dwindled away. Population in 1841, 2913.

Sandwich gives the title of Earl to the Montague family; at the coronation of kings it sends three barons to assist at the solemnity, and when there is a queen, six. The modern term *Sandwich*, applied to a lunch of bread and ham, is said to have arisen from an eccentric or penurious earl of the name having been in the habit of providing himself with one in his pocket, to avoid dining in town.

SANDWICH ISLANDS; a cluster of islands in the North Pacific ocean, discovered by captains Cook and King in 1778, who gave them their present name in honour of the first lord of the admiralty. The group consists of ten islands, of which eight are inhabited, and extends from lat. 18° 50′ to 22° 20′ N., and from lon. 154° 53′ to 160° 15′ W., lying about one third of the distance from the western coast of Mexico to the eastern coast of China. The population of the whole group was estimated by captain King at 400,000, but, according to Ellis, does not at present exceed 150,000, the diminution being owing partly to the desolating wars of Tamehameha's reign, and partly to the ravages of a pestilence, brought in by foreign vessels, which has twice prevailed in the islands. The total superficial extent is about 6000 square miles. The principal islands in extent and population are Hawaii (Owhyhee), 4000 square miles, 85,000 inhabitants; Maui (Mowee), 600 square miles, 20,000 inhabitants; Oahu (Woahoo), 520 square miles, 20,000, containing the town of Honolulu, the residence of the king, of the foreign functionaries, and twelve or fourteen merchants, chiefly Americans, with about 7000 inhabitants: Tauai (Atooi), 525 square miles, 10,000 inhabitants. The latter island and Nihau (Oneehow) are distinguished for the cultivation of the yam, and are much resorted to by ships for supplies of that article. Most of the islands are volcanic and mountainous. In some places, the volcanoes are in activity. Several of the summits are of great height. The loftiest, Mouna Roa, and Mouna Kea, are estimated at about 15,000 feet. The climate is warm, but not unhealthy, the winter being marked only by the prevalence of heavy rains between December and March. A meteorological table gives as the greatest heat during the year, 88° of Fahrenheit, as the least 61°. The only quadrupeds originally found in these islands were a small species of hogs, dogs, and a sort of rat. There are now large herds of cattle in Hawaii, and many tame ones in the other islands, goats, sheep, and horses. There are no poisonous reptiles, excepting centipeds, which are neither large nor numerous. There are an abundance of sea-fowl on the coasts, and in the interior a species of parrot and a kind of woodpecker, with which the images of the gods were formerly adorned. The vegetable productions are taro (*arum esculentum*), yam, bread-fruit, cocoa-nut, and strawberry. Oranges, grapes, and other tropical fruits, have been introduced, and thrive well, and some culinary vegetables are cultivated for the shipping which resorts thither. The situation of the Sandwich islands renders them important to vessels navigating the Northern Pacific, partly for repairs and provisions, and partly in commercial respects. After the visit of Vancouver (1792), they were not much visited, except by traders from the United States, who, having discovered among them the sandal wood, conveyed large quantities of it to China, where it is burnt in the temples. The independence of the Spanish colonies, and the prosecution of the whale-fishery on the coasts of Japan, have greatly increased their importance.

The natives are, in general, rather above the middle stature, well formed, with fine muscular limbs, and open countenances. Their hair is black or brown, and frequently curly; their complexion a kind of olive, and sometimes reddish-brown. Their language is a dialect of that spoken by the inhabitants of the Society islands. They are of a mild and gentle disposition, inquisitive and intelligent; but previously to the abolition of their idolatrous religion, the practice of sacrificing human victims prevailed among them. Since their adoption of Christianity, they have made a no less wonderful progress in the arts of civilized life than in moral character. They have many convenient and handsome houses, neat and comfortable clothing, &c. Stewart, who visited the islands in 1829, after an absence of four or five years, gives a striking description of the change which had taken place in that interval. After the visit of captain Cook, who was killed at Hawaii in 1779, the islands were involved in a series of destructive wars between several rival chiefs, for the undivided sovereignty. The result of these struggles was the ascendancy of Tamehameha, chief of Hawaii, a sagacious, enterprising, and ambitious prince. He built a navy, armed his guard in the European manner, fortified his palace with cannon, encouraged commerce, and introduced various mechanical arts among his subjects. On his death in 1819, he was succeeded by his son Rihoriho; and about the same time idolatry was abolished and the idols burnt. During the last year of his reign, Tauai and Nihau, the only islands of the group not subdued by Tamehameha, submitted to his government. Rihoriho, with his queen, died in England in 1824, and his brother and successor, Kauikeaouli, is at present (1837) about twenty-five years of age. The regency has been in the hands of the queen-mother, Kaahumanu. In 1820, a mission was established at Hawaii by the American Board of Foreign Missions. The missionaries fortunately arrived just after the abolition of the national idolatry, and their efforts have been attended with great success. Not only have they introduced the arts, comforts and uages of civilized society to a great extent, but the Christian religion has been embraced by nearly the whole population. Printing presses have been established, books printed in the native language, an alphabet of twelve letters (five vowels and seven consonants) invented, schools established, and churches built. The Missionary Herald for January, 1832, states the whole number of schools in the islands to be above 900, with 50,000 learners. Missions have been established in Oahu, Hawaii, Maui, Taui; and in 1830, a band, consisting of seven persons (three missionaries), and in 1831, another of nineteen persons (eight missionaries and a printer), sailed for the same destination. See Ellis' *Tour through Hawaii* (3d ed. 1827); lord Byron's *Voyage to the Sandwich Islands* (1827); Stewart's *Residence in the Sandwich Islands.*

SANDWICH LAND; a barren desert, and frozen island in the South Atlantic ocean, discovered by captain Cook in 1775; lat. 58° 35′ S.; lon. 26° 44′ W. Seals, whales, and other *cetacea*, penguins, and other sea-birds, are the only animals found here.

SANDY HOOK; a small island on the coast of New Jersey, in the township of Middleton, seven miles south of Long Island, and twenty-five south of New York. It was formerly a peninsula. Sandy Hook, or Point, forms a capacious harbour. Here is a light-house on the north point of the Hook, in lat. 40° 26′ N,, lon. 72° 2′ W.

SANDYS, George; second son of the archbishop of that name, was born in 1577. In 1589, he was placed at Oxford. In 1610, he commenced his travels through the Levant and other parts of the Turkish empire, returning home through Italy, and staying some time at Rome. This journey occupied him upwards of two years. On his return to England, he published, in 1615, an account of the countries through which he had passed. This work was followed by several poetical productions, the first of which, a translation of Ovid's Metamorphoses, originally printed in London in 1627, with the first book of the Æneid annexed, is highly spoken of by Dryden, who styles the author "the best versifier of the last age." He also wrote a Paraphrase on the Psalms, and upon the Hymns dispersed through the Old and New Testament (London, 1636; reprinted in folio, 1638), and some other works. He died in 1643.

SANGALLO, Antonio, an eminent Italian architect of the sixteenth century, was born in the environs of Florence, and was intended for the business of a carpenter; but, happily visiting Rome, where he had two uncles who were architects, he was instructed by them in their art, his knowledge of which he perfected under Bramante, whom he succeeded, as architect of the church of St Peter. He was much employed under the popes Leo X., Clement VII., and Paul III., both in fortifying places and in the construction of public buildings, the grandeur and solidity of which have been much admired. He died in 1546.

SANGIAC (Turkish *horsetail*) signifies, in the Turkish army, an officer who is allowed to bear only one horsetail, the pachas having two or three. The sangiac is also commonly the governor of a smaller district of country than a pachalic, thence called *sangiacat*, of which there are three or four in each pachalic. See *Turkey*.

SANGIACAT. See *Sangiac* and *Turkey*.

SANGRAAL, or SANGREAL. See *Round Table*, and *Romance*.

SANGUINARINA; a vegetable alkali, discovered by Mr A. A. Hayes, of Roxbury, in the root of the *sanguinaria Canadensis*, or blood-root. It is obtained as follows: Digest the bruised root in three parts of cold diluted sulphuric acid (water ten, acid one): after twenty-four hours, decant the fluid, and repeat the operations twice, using water but slightly acidulated; mix the liquors, and filter, and to the clear red liquor which passes, add a solution of ammonia, so long as it occasions precipitation; decant the fluid after subsidence, and wash the brown precipitate in cold water; it is sanguinarina combined with extractive and colouring matter, and mixed with some earths. Dissolve the soluble part in warm alcohol, and wash with the same; distil the clear fluid from a glass retort; when the solution becomes turbid by concentration, it must be decanted, while hot, into cylindrical vessels, one half filled with pure cold water; the alkali is precipitated in the form of a yellowish-white bulky powder, mingled with a substance insoluble in diluted acids, and resembling resin; by dissolving the soluble part in muriatic acid with ten of water, precipitating by ammonia, and treating as above, the alkali is obtained pure. It is a soft white powder, destitute of odour, but having a bitter acrid taste. It renders blue vegetable colours green; when heated, it melts into a brown, transparent, and brittle substance. It dissolves in most acids, and forms along with them neutral salts of a pure scarlet-red colour. The salts are soluble in water to which they communicate their red colour. They are inodorous; but their powders produces great irritation in the nostrils. They are all precipitated by infusion of galls, and are decomposed by alkalies and alkaline earths. The medicinal virtues of the salts of sanguinarina are chiefly deobstruent, acrid-narcotic, and emetic. The efficacy of the blood-root is attributable solely to the presence of this alkali.

SANHEDRIN (*Syriac*), OR SYNEDRIUM (*Greek*); literally a *council*. The highest ecclesiastical and secular court of the Jews, which was established for the decision of their internal differences, and the settlement of their affairs, was called *Sanhedrin*. It consisted of seventy-one members, of the rank of priests, elders, and interpreters of the law (those skilled in biblical knowledge, or scribes), under the direction of the high-priest. Besides this high council, which had its seat in Jerusalem, there were also inferior courts in the country towns, composed of persons of the same classes. In Jerusalem there were two of these inferior courts. These national tribunals were limited, by the Roman procurators, to the affairs of religion, and the settlement of questions relating to the observance of the Mosaic law; and they could not, even in such cases, inflict the punishment of death arbitrarily. After the destruction of Jerusalem by the Romans, these courts were annihilated, with the Jewish state. The great sanhedrin assembled at Paris, in 1806, by Napoleon, was only an occasional expedient, in order to regulate the civil relations of the Jews in the French empire.

SAN MARINO. See *Marino*.

SANNAZARO, JACOPO, a distinguished Italian poet, who wrote both in Latin and Italian, was born at Naples, in 1458. He received his education in the school of Giuniano Maggo, and the academy of Pontanus, in which, according to the custom in the Italian academies, he adopted the name of Attius Sincerus. An early passion for Carmosina Bonifacia, whose praises he sung under the names of Harmosina and Phillis, unfolded his poetical talents. In the hope of conquering his love by separation, he went abroad, but yielding to the impatience of his passion, returned to Naples, where he found his mistress dead. During his absence he wrote his Arcadia, a series of idyls, which, although like his other Italian poems, the work of his youth, still retains its reputation. His poetry attracted the notice of king Ferdinand and his sons Alphonso and Frederic, who made him the companion of their journeys and campaigns. Frederic, who ascended the throne in 1496, gave him the delightful villa of Mergellina, with a pension of 600 ducats. But in 1501, his benefactor was obliged to abdicate the throne, and flee to France; and Sannazaro was too faithful to desert him in his reverses. After the death of Frederic, he returned to Naples and died there in 1533. He was buried in the church Santa Maria del Parto, which he had built at his villa. Sannazaro wrote sonnets and *canzoni* in Italian, several Latin poems, elegies, eclogues, epigrams, and a longer poem, *De Partu Virginis*, in three books. His elegance of expression, no less than the poetical beauty of his thoughts, gave him a distinguished place among the modern Latin poets.

SANQUHAR; a royal burgh in Dumfries-shire, is situated on the border of the county, and on the banks of the river Nith, at an equal distance of fifty-six miles from Edinburgh and Glasgow, twenty-seven from Dumfries, and thirty-two from Ayr. This place was made a burgh of barony, by charter, in 1484, previously to which, according to the charter, it had been a burgh of the same kind from time immemorial. It was, in 1596, erected into a royalty by James VI., at the solicitation of Robert Crichton, Lord of Sanquhar. Before 1777 large quantities of woollen stockings (Sanquhar hose) were made here; but this manufacture having declined, in consequence of the American war, it has been partly superseded by carpet making. The parish of Sanquhar is about fifteen miles in length, and from nine to ten in breadth; and the surface is in general rugged and mountainous, especially the tract called the Lowthers, or Lothiers, hills rising gradually towards the north to the height of 3000 feet above the level of the sea. The soil is unfruitful, except on the borders of the Nith and its tributary streams, where it consists of a light loam, and is tolerably productive when properly cultivated. But the hills, though externally barren, contain immense subterraneous treasures. Besides most extensive quarries of limestone and coal, there are mines of lead ore worked with great advantage, especially at Wanlockhead. Southeast of the town are the ruins of the ancient castle of Sanquhar, which was a strong square building with towers at the angles. It was taken by the English in the reign of Edward I., and retaken by Sir William Douglas of Douglasdale, who put the garrison to the sword. The castle and barony now belong to the marquis of Queensberry. Population of burgh and parish in 1841, 3577.

SANSCRIT, OR SAMSCRIT (that is, the *perfect*), ALSO DEVA-NAGARA (that is, the *divine*); a Brahminical language (because it is understood now by the Brahmins alone), the present dead language of the Hindoos, in which the books of their religion and laws, besides many other works of different sorts are written. The remarkable similarity between the Sanscrit and the Greek languages reminds one of Gibbon's opinion, "that some, perhaps much, of the knowledge possessed by the Indians, originated from the Greeks of Bactriana." Francis Bopp has published a Complete System of the Sanscrit Language (Berlin, 1825, 4to.). A. Langlois, also, in his *Monuments litteraires de l'Inde, ou Mélanges de Littérature Sanscrite*, &c. (Paris, 1827), has presented a popular view of the Sanscrit literature. See also, *Indian Languages*, and *Oriental Literature*.

SANS-CULOTTES (i. e. without breeches); the name given in derision to the popular party, by the aristocratical, in the beginning of the French revolution of 1789. Like the epithet *gueux* (q.v.) bestowed on the patriot party in the Netherlands, and like that of *Methodists*, bestowed on the friends of Wesley, it was adopted by those to whom it was first applied by way of contempt. At the time when the most exaggerated principles of democracy prevailed, *sans-culottism* became a term of honour. In the French republican calendar, the *jours complémentaires* were at first called *jours sans-culottides*. See *Calendar*.

SAN SEBASTIANO, OR RIO JANEIRO. See *Rio Janeiro*.

SANS-SOUCI (French, *without care*); a palace near Potsdam, where Frederic the Great was fond of residing; hence he is sometimes called the *philosopher of Sans-souci*.

SANTA CRUZ. See *Cruz, Santa*.

SANTA FE; capital of New Mexico; a territory of the Mexican republic, in the northern part of which it is situated, not far from the Rio del Norte; lat. 36° 12′ N.; lon. 109° 33′ W.; 1500 miles NN.W. of the city of Mexico. The population is between 3000 and 4000. It is the centre of a considerable overland trade between the northern part of Mexico and the western states of North America. See *Mexico, New*, and *Texas*.

SANTA FE DE BOGOTA. See *Bogotá*.

SANTA FE DE GUANAXUATO. See *Guanaxuato*.

SANTA HERMANDAD. See *Hermandad*.

SANTA MARTHA. See *Martha, Santa*.

SANTA MAURA. See *Leucadia*.

SANTANDER, NEW. See *Mexico*.

SANTANDER (*S. Andero*); a small province of Spain (*Las montanas de Santander e de Burgos*), on the southern coast of the bay of Biscay, consisting of steep mountains and deep valleys. It is rich in iron of the best quality, and there are cannon founderies and manufactories of cast steel established in the mountain villages La Cavada and Liergams. The coast has some excellent harbours. The principal town, Santander (10,000 inhabitants), has a safe and commodious and easily accessible harbour, and was formerly one of the privileged ports (*puertos habilitados*) which were allowed a free trade with South America. Its commerce with the north of Europe, to which it exports much wool, is considerable. It is the see of a bishop.

SANTEE; a river of South Carolina, formed by the union of the Congaree and Wateree It flows into the Atlantic by two months, twenty miles below Georgetown. It affords good navigation, at some seasons, nearly 300 miles, to Morgantown, in North Carolina. It is connected with Cooper river by a canal. The main branch in North Carolina is called Catawba.

SANTIAGO, the capital of Chile, is situated in a pleasant plain on the Mapocho, thirty leagues distant from the Pacific ocean, and seven from the Andes, fifty-five miles south-east of Valparaiso; lat. 33° 26′ S.; lon. 70° 44′ W. The population of the city and environs is about 40,000. Among the principal buildings are the mint, the cabildo, government house, cathedral, and other churches, and several convents. The private houses are mostly built of clay baked in the sun; the churches and other principal buildings of brick or stone. The streets are straight and regular, and the city contains a number of handsome squares. See *Chile*.

SANTIAGO, OR ST JAGO. See *Jago, St.*

SAP. See *Botany*.

SAP GREEN. This pigment is prepared by mixing the juice of the ripe berries of the buckthorn (*rhamnus catharticus*) with alum. The juice of the unripe berries has the colour of saffron, and is used for staining maps or paper, and if the berries be gathered late in the autumn, the juice is purple. The buckthorn is a large shrub, with inconspicuous greenish flowers, somewhat resembling the privet when in fruit, which grows wild throughout Europe. The bark affords a beautiful yellow dye. The berries are small, globular and black, and possess purgative properties, but are chiefly employed in colour-making, and sometimes in dyeing; they enter into commerce under the name of *French berries*.

SAPPARE (*cyanite; disthene; rhætizite*). The primary form of this mineral is a doubly-oblique prism, of which the terminations are nearly rhombs. The angles of the prism are 106° 15′ and 73° 45 ; of the terminal pane of the prism, in one direction 100° 50′ and 79° 10′, and in the other 93° 15′ and 86° 45′. It ordinarily occurs in four or eight sided prisms of considerable length, and destitute of regular terminations. The cleavage is highly perfect, parallel with the broader faces of the prism, but less distinct in the direction of the narrower lateral face, and that of the terminal plane. Lustre vitreous; colour generally some shade of blue, occasionally very intense berlin-blue; it is also green, gray, and white; streak white, transparent or translucent; hardness not inferior to that of feldspar; on the solid angles, equal to quartz; specific gravity 3·6. The massive varieties consist of large, broad, columnar individuals; sometimes straight lamellar, often curved, variously aggregated; having their faces of composition, in most cases irregularly streaked. Three varieties of the present species analyzed, the first by Saussure, the second by Laugier, the third by Klaproth, have yielded—

Alumine,	54·50	55·50	55·50
Silica,	30·62	38·50	43·00
Lime,	2·02	0·50	0·00
Magnesia,	2·30	0·00	0·00
Oxide of iron,	6·00	2·75	0·50
Water,	4·56	0.75	0·00
Potash,	0·00	0·00	a trace.

It is not altered on being exposed to heat, and is infusible even in very high degrees of temperature. It is entirely soluble in borax. Some crystals exhibit positive, others negative electricity, on being rubbed. It occurs in crystals, or massive, imbeded in rocks of gneiss and mica slate, and is frequently accompanied by staurotide. Crystals and large cleavable varieties are found at St Gothard in Switzerland, the Zillerthal in the Tyrol, the Sau Alps in Carinthia, at Chesterfield in Massachusetts, and Litchfield, Connecticut, in the United States. The variety of a white colour in fine, interlacing prisms called *rhætizite*, comes only from Pfitsch in the Tyrol. Thin laminæ of sappare are sometimes employed as a support in blow-pipe experiments, with minerals. Blue transparent varieties are cut and polished, and then sometimes sold as an inferior kind of sapphire.

SAPPHIRE. See *Corundum.*

SAPPHO, a distinguished Greek poetess, was born at Mitylene, on the island of Lesbos, and flourished about 600 B. C. Alcæus, like her, a lyric poet, and a native of the same island, is said to have loved her; but his passion was not returned. The brilliant fame which she enjoyed seems to have subjected her to calumny, and even to persecution, on account of which she left Lesbos. She is particularly accused of unnatural love to her own sex; hence the expression *Sapphic love.* She must not be confounded with a later Sappho, also a native of Lesbos, the place of whose birth was Eresus, famous for having thrown herself from the Leucadian rock in despair on account of her unrequitted love for a youth named Phaon. Ovid, however, confounds the two.—See Welker's *Sappho vindicated against a prevailing Prejudice* (Göttingen, 1816). The ancients ascribe various poems to the elder Sappho,—hymns, odes, elegies, epigrams,—of which only fragments have come down to us; these display deep feeling, glowing imagination, and a high finish. She is said to have invented several metres; at least one still bears her name, and has been used by ancient and modern poets:

— ⏑ — — — | ⏑ ⏑ — ⏑ — ⏒
— ⏑ — — — | ⏑ ⏑ — ⏑ — ⏒
— ⏑ — — — | ⏑ ⏑ — ⏑ — ⏒
— ⏑ ⏑ — ⏒

SARABAND a dance, said to be derived from the Saracens. The tune is written in $\frac{3}{4}$ or $\frac{3}{8}$ time, and consists of two parts. Its character is grave and expressive. It originated in Spain, where it was formerly danced to the castanets.

SARACENIC STYLE OF ARCHITECTURE. See *Architecture.*

SARACENS (*Orientals*); the name adopted by the Arabs after their settlement in Europe, as the term *Arabs* (people of the West), which indicated their geographical situation in Asia, was improper in Europe.

SARAGOSSA (in Spanish, *Zaragoza*); a city of Spain, capital of Arragon, lying in a fertile plain on the Ebro, one hundred and seventy-five miles north-east of Madrid; lon. 1° 42′ W.; lat. 41° 38′ N. It is an old town, built on the site of the ancient Roman colony Cæsar Augustus, of which the present name is a corruption. The streets, with the exception of the long and wide Cozo, and a few others, are narrow and crooked. There is a fine stone bridge, six hundred feet long, over the Ebro. Previous to 1808, it had 55,000 inhabitants, eighteen churches, and forty monasteries. Among the churches, that of Our Lady of the Pillar (*Nuestra Senora del Pilar*) is celebrated for its miraculous image of the virgin, to which pilgrimages are made from different parts of Spain. The canal of Arragon, nearly a hundred miles in length, which affords Navarre and Arragon a communication with the Mediterranean, approaches the city. The present population of the city is 45,000.

Saragossa has gained celebrity by the two sieges which it sustained in 1808 and 1809. The adjoining provinces of Catalonia and Navarre were overrun by the French troops; Saragossa contained not more than two hundred and twenty regulars, and was unfortified; and the public treasury was empty. When the people were seeking for a leader, the rank of Palafox, and the favour which he was known to have enjoyed with Ferdinand, directed their choice to him, and, accordingly, May 25, 1808, he was proclaimed by them governor of Saragossa, and of all the kingdom of Arragon. He was then in his eight and twentieth year, and had but a scanty portion of military knowledge. He immediately called into service all the half-pay officers, formed several corps, composed, in part, of the students of the university, took other measures to sustain a siege, and, May 31, declared war against the French, in a proclamation remarkable for its energy. This paper was hardly issued, before a French corps of 8000 men marched to attack Saragossa. The French general was, however, met by the Spaniards, and, after a hard struggle, was compelled to retire. Palafox took advantage of this to quit the city for a while, in order to collect troops, and organize the defence of the rest of the province. He returned with about 1500 men, who had retreated from Madrid, and was soon invested by the French, who had received powerful reinforcements, and a train of artillery. The besiegers carried the post of Torrero and some other exterior works, not without great loss, pushed forward their attacks against the gates of El Carmen and El Portillo, began to bombard the city, July 22, and, August 4, forced their way into the place, by the gate of Santa Engracia, and, at length, made themselves masters of nearly half of Saragossa. The French general now summoned Palafox to surrender. His summons was contained in the following laconic sentence: "Head-quarters, St Engracia, capitulation." With equal laconism, Palafox instantly replied, "Head-quarters, Saragossa. War at the point of the knife." August 5, the brother of Palafox had opened a passage into the city, with 3000 regular troops. A council of war was now held, in which it was resolved that the remaining quarters of the city should be contested inch by inch, and that, should they be lost, the people should retire across the Ebro into the suburbs, destroy the bridge, and defend the suburbs to the last man. This resolution was unanimously applauded by the Saragossans. They did not, however, content themselves with resting on the defensive. They fell upon the besiegers with unequalled and irresistible fury. The struggle continued for eleven days, almost without intermission. Every day the people gained ground, till, at last, the enemy held only a narrow space within the walls. Convinced that there was no longer any hope of success, the French general abandoned the siege, which had lasted sixty-one days, and cost him several thousand men. Palafox availed himself of the breathing-time thus obtained to increase his force, and construct additional works. He was not allowed a long respite. To reduce Saragossa to submission was, on many accounts, an object of great importance to the French. In November, therefore, a large army, under marshals Mortier and Moncey, marched to recommence the siege. Palafox was defeated at Tudela, and again under the walls of Saragossa, and the place was invested. Being summoned to surrender, he replied and acted with the same energy as before. The approaches were vigorously carried on by the French, and a furious bombardment was incessantly kept up. Almost hourly combats took place between the besiegers and the besieged, in which the latter displayed a desperate valour. At length, January 27, a general assault was made, and the French established themselves on the breaches. Once more they penetrated, by degrees, into the city, and once more they met with the most obstinate and sanguinary resistance. Old men, women, and children, all took a part in endeavouring to stop the progress of the besiegers. Not only street by street, but house by house, and even room by room, was contended for, like the outworks of a fortress, and frequently lost and recovered. The besiegers finally resorted to mining to win their way, their progress by open force being bought at too dear a rate. In this way they became masters of about one fourth of the surface of the city. Saragossa, however, would long have resisted all their efforts, had it not been assailed by a force more terrible than the besiegers. An epidemic fever raged in the place, and spread destruction among the ranks of the Saragossans, there being neither hospitals, nor medicines, nor even shelter for the sick. Palafox himself was attacked by it, and, February 20, was obliged to give up the command to general St Marc, by whom the capitulation was signed on the following day. The garrison was reduced to less than 12,000 men, who, when they marched out of the city, had more the appearance of spectres than of human beings. During this second siege, 54,000 of the besieged perished, of whom a fourth were soldiers. See *Spain.*

SAR LOUIS. See *Saar Louis.*

SARATOGA; a post-township of New York, in Saratoga county, on the west side of the Hudson, thirty miles north-by-east from Albany; population in 1830, 2461. Saratoga is memorable as the place where general Burgoyne surrendered the British army, consisting of 5791 men, to general Gates, October, 1777. In 1819, Saratoga township was divided, and the western part was named *Saratoga Springs.*

SARATOGA SPRINGS is an incorporated village, containing celebrated mineral waters, and is situated seven miles north-east of Ballston Spa, and thirty-two north of Albany; population in 1830, 2204. Here are extensive establishments for the accommodation of the numerous invalids and people of fashion, who resort hither during the summer season. The surrounding country has very few charms. The springs are very numerous, and several of them are very large. The *Congress Spring* is the most celebrated, and great quantities of the water are bottled and sent to all parts of North America.

SARCOLATRÆ. See *Apollinarians.*

SARCOPHAGUS (from σαϱξ, flesh, and φαγω, I eat); originally a species of lime stone, found in the neighbourhood of Assor, in Mysia, which, according to Pliny (*Hist. Natur.* ii, 96, and xxxvi, 17), had the power of destroying, within forty days, the corpses put into it, so that nothing remained entire except the teeth. Hence the name. This quality brought the stone into use for coffins, and thus the name came to be applied to all coffins of stone, though often used for a contrary purpose to that which the name expresses. The ancients, who embellished every thing, soon adorned the *sarcophagi* and often placed them upon the monuments which were originally erected over graves, to protect them against violence (*monumentum*, i. e. *munimentum*). Under the Roman emperors, this custom became more general, and rare species of stone were used. The Egyptian coffins of granite and alabaster served as models. Of the great number of *sarcophagi* which have come down to us, several are known by particular names; thus the sarcophagus of Homer, in the Besborodko gardens at St Petersburg, and that of Alexander, in the British museum, once in the mosque of St Athanasius at Alexandria, taken by the British from the French, during their campaign in Egypt. English archæologists have laboured to prove its genuineness, and it is known that the body of Alexander was removed from the temple of Jupiter Ammon to Memphis, and afterwards to Alexandria, where Augustus and Septimius Severus (202 A. D.) saw it. The tomb, it is supposed, was so magnificent that the Christian destroyers spared it (though not the body), and changed it into a church of St Athanasius. The sarcophagus, it is said, was used as a cistern. The statement of Chrysostom (*Opera* x, 625, ed. Montfaucon) seems to be inconsistent with this opinion, which, however, derives some support from an Oriental tradition. Clarke describes this sarcophagus, which is covered with hieroglyphics, in his Tomb of Alexander (Cambridge, 1805, 4to.). The form of these *sarcophagi* was ordinarily a parallelopipedon, or an oblong square, similar to our coffins. Sometimes the angles were rounded, thus assuming an elliptical shape. Some *sarcophagi* were not intended to contain the whole body, but only an urn.

SARD, OR SARDOIN; a variety of carnelian, which exhibits, by reflected light, a dull reddish-brown colour, but by transmitted light appears of a rich blood-red colour.

SARDANAPALUS, OR TONOSKONKOLEROS (supposed to be the Esar-Haddon of Scripture), whose name proverbially denotes effeminate softness and wantonness, was the last king of Assyria. He is said to have been a prince of great power and immense wealth, who, according to an inscription on his tombstone, built the cities of Tarsus and Anchiale in one day. Immersed in sensual gratification, he lived inactively and ingloriously, in women's clothes, among his concubines, and thereby excited against him the discontent of his subjects. Arbaces, a Median satrap, and Belesis, a Babylonian priest, together raised an army against him; whereupon Sardanapalus marched out to meet them, and overcame them in three battles. In the belief that he was perfectly secure, he returned anew to his pleasures, and prepared a splendid banquet for his victorious army. But Arbaces, aided by the Bactrians, attacked his camp by night, gained a great victory, and pursued the fugitives to the very gates of Nineveh. Here Sardanapalus defended himself for two years, while all his provinces in the mean time revolted. An inundation of the Euphrates at length destroyed a part of the city walls, and thereby rendered it impossible to continue the defence of Nineveh. In this desperate state of affairs, Sardanapalus set his palace on fire, and consumed himself, together with all his wives, servants and treasures, in the twenty-first year of his reign. His destruction is usually considered as having taken place in the year 888 B. C., but, according to Volney, it should be placed in the year 717.

SARDES, OR SARDIS; the ancient capital of Lydia, on the river Pactolus, not far from the mount Tmolus. Under the Persians, it was a magnificent city, and a great market for slaves, on the commercial route from Asia to Europe. The Greeks conquered and burned it 500 B. C. An earthquake again destroyed it, but Tiberius rebuilt it. A small village stands at present on its site, and considerable ruins still attest its ancient grandeur.

SARDINIA; an island in the Mediterranean sea, having the title of kingdom, with a superficial area of 9100 square miles, and a population of 490,050. It contains nine towns, fifteen villages, and 377 hamlets, and is separated from Corsica on the north by the straits of Bonifacio. The soil is fruitful, yielding corn, wine, oil, figs, and other southern fruits. There is an abundance of wood on the mountains, but, on account of the want of good roads, the seaport towns are supplied from Corsica; on the same account Sardinia has no posts. The horses, which, in some parts, run wild, and the horned cattle, are small, but well made. The fisheries are important. Large quantities of salt and cheese are manufactured, and the latter is exported. The causes of the small population of this fertile island are to be referred to the accumulation of the landed property in a few hands, and the absence of the great proprietors (there are in Sardinia, 376 fiefs, half of which belong to Spanish families), the privileges of the nobility and clergy, and the practice of private revenge (1000 murders have been committed in the space of one month). The interior exhibits an astonishing degree of barbarism; the peasants are clothed in leather or undressed skins, and the mountains are infested with banditti. The principal towns are the capital, Cagliari and Sassari (20,000 inhabitants). Sardinia was probably settled by Pelasgian colonies, in the time of the Heraclides, as the *noraghs*, or ancient monuments, found in the island, indicate. The number of these monuments is about 600: those which are entire are fifty feet high, with a diameter of ninety feet at base, and terminating at the summit in a cone. They are built on little hills, in a plain, of different sorts of stones, and in some cases are surrounded by a wall. The island then belonged successively to the Carthaginians, Romans, Vandals, Saracens, the popes, the German emperors, to Pisa, Genoa, and Spain. In 1720, it was ceded to the duke of Savoy, as an indemnification for the loss of Sicily. (See *Sardinian Monarchy*.) The island was mildly governed by a viceroy, and the inhabitants allowed to retain their old usages. Some dissatisfaction, however, arose towards the close of the century, and, in 1793, a rebellion broke out, which was terminated by the concessions of the government in 1796. The revenue from the island is inconsiderable. The inhabitants are Catholics, and speak several different dialects, some of which are a mixture of Spanish and Italian. The better classes speak pure Italian. See Marmora's *Voyage en Sardaigne, de* 1819—1825 (Paris, 1826); Mimaut's *Histoire de Sardaigne* (1825); Smyth's *Present State of Sardinia* (London, 1828); and Petit-Radel's *Notices sur les Nuraghes de la Sardaigne* (Paris, 1826).

Sardinian Monarchy; a kingdom of the south of Europe, composed of the island of Sardinia, and of several countries of the continent. It comprises in the whole an extent of 28,000 square miles, with a population (in 1829) of 4,165,277 (300,000 French in Savoy, 3,865,077 Italians, and 3200 Jews). The population, with the exception of the Jews, and 21,900 Waldenses, is entirely Catholic. The continental parts of which the monarchy is composed are as follows: The duchy of Savoy; the duchy of Piedmont; the county of Nice or Nizza, with the principality of Monaco; the duchies of Montferrat and (Sardinian) Milan; and the duchy of Genoa (see the separate articles); which are divided, for administrative purposes, into eight provinces; Savoy, Turin, Coni, Alessandria, Novara, Aosta, Nizza, and Genoa. The revenue amounts to £202,500; the expenditure to £236.250; debt to £562,500; army, 28,000 men, exclusive of 40,000 militia, on the island of Sardinia. The power of the crown is unlimited: the administration is conducted by three secretaries of state: the succession to the throne is confined to the male line. In the island of Sardinia there are estates, and in Genoa the assent of the estates is necessary for the imposition of new taxes. The nobility is numerous, but not exempt from taxation. The clergy (39 archbishops and bishops, 3996 parish priests, 293 male, and 144 female convents) is not very wealthy. The papal power is limited by a concordate. There are four universities, at Turin, Genoa, Cagliari, and Sassari, but education is in a low state.

The reigning prince, the first of the house of Savoy Carignon, is Charles Emanuel, born 1800, married Theresa, sister of the grand-duke of Tuscany, in 1817, succeeded his uncle Charles Felix, May, 1831. He has two sons, Victor Emanuel (born in 1820), and Ferdinand (born in 1822). The royal title is king of Sardinia, Cyprus and Jerusalem, and duke of Savoy. The crown-prince is styled prince of Piedmont. Former sovereigns, Victor Amadeus II. 1713—30; Charles Emanuel III., to 1773; Victor Amadeus III., 1796; Charles Emanuel IV., abdicated 1802; Victor Emanuel I., abdicated 1821; Charles Felix, died 1831. The nucleus of this monarchy was Savoy, a fragment of several states that had crumbled to pieces (the old kingdom of Burgundy, the Frankish monarchy, the Carlovingian kingdom of Italy, and the kingdom of Arles), which became independent in the beginning of the eleventh century. Rodolph III., last king of Arles, created Berthold count of Savoy in 1016. He was probably the ancestor of the subsequent counts and dukes of Savoy. The counts of Savoy gradually extended their territories, partly by marriages, partly by their adherence to the German emperors, in the disputes between the Guelfs and Gibelines, partly by purchase, and partly by an artful policy in their connexions with the Spanish, French, and Austrian courts. By the marriage of the duke Louis with Anne of Lusignan, daughter of James, king of Cyprus, and the will of the queen-dowager of Cyprus (1482), the house of Savoy obtained claims to the kingdom of Cyprus, which caused the kings of Sardinia, at a later period, to assume the title of kings of Cyprus and Jerusalem.

In the history of the state we may distinguish two periods.

I. From the first settlement of the succession (1383) by the will of count Amadeus VI., which established the indivisibility of the dominions, and the descent in order of primogeniture, until the admission of the Sardinian monarchy into the European family of states, by the peace of Utrecht. In this period, among other acquisitions, the house of Savoy gained possession of the county of Nizza (1399), and count Amadeus VIII. received the ducal title from the emperor Sigismund in 1416; but in the wars between the emperor Charles V. and Francis I. of France, it lost, in the middle of the sixteenth century, the Valais and Geneva, which put themselves under the protection of Switzerland, and the Pays de Vaud, which was taken possession of by Berne. Philibert Emanuel, who had been driven from his territories by the French, served with so much distinction as the general of Philip II. of Spain, in the war against France, that by the peace of Chateau Cambresis (1559), Savoy and Piedmont were restored to him. Meanwhile Protestantism had crept into the country. At the exhortation of the pope, Philibert determined to convert the Protestants, among whom were many Waldenses, by force; but he was several times defeated by them in the mountains; on one of which occasions he lost 7000 men, and was obliged to grant them freedom of religious worship. This prince encouraged manufactures among his subjects, and laid the foundation for the present extensive culture of silk by the introduction of mulberry trees. He also began the construction of several fortresses, and built the citadel of Turin. In 1476, he acquired the principality of Oneglia by exchange, and the county of Tenda by purchase. In the war for the Spanish succession, duke Victor Amadeus II. acquired possession of a part of Milan (Alessandria, Val di Sesia, &c.) as an imperial fief, and of the duchy of Montferrat, which had been originally (twelfth century) a German marquisate, and which should have devolved to Piedmont by descent in 1631. The peace of Utrecht (1713) added Sicily, with the royal title; but, in 1720, the new king was obliged to receive Sardinia in lieu of that island.

II. The second period, from 1720 to the present time, embraces three distinct divisions in Sardinian history.

1. *The forty-three Years' Reign of King Charles Emanuel III.* (1730—73), who was equally distinguished as a general and a ruler. By the peace of Vienna (1735), as the ally of France and Spain against Austria, he obtained a second fragment of Milan (Tortona and Novara), as an imperial fief, and by the treaty of Worms (1743), during the war for the Austrian succession, a third fragment (Anghiera, Vigevavo, &c.), likewise as fiefs of the empire. In 1762, he was the mediator of the peace between France and England. By the wisdom of his government, the country was placed in a most prosperous condition; and also the new code of laws (*Corpus Carolinum*, promulgated in 1770,) is an honourable monument of his reign. In his disputes with the pope, Charles Emanuel maintained the rights of the state, as acknowledged by the concordate of 1726 (confirmed by Benedict XIV. in 1742), made all ecclesiastical appointments, subjected the clergy to taxation, and made his sanction requisite to give validity to the papal bulls.

2. *The unfortunate Reigns of Victor Amadeus III.* (*died* 1796), *and of Charles Emanuel IV.* (*abdicated* 1802). The former joined Austria against France, July 25, 1792, and was stripped of Savoy and Nizza in September of the same year. The latter entered into an alliance with France against Austria (April 5, 1797); but his territory was nevertheless, invaded by the French directory, which made the complaints of the Sardinian people against the burden of taxes and the privileges of the nobility a pretext, and he was compelled to cede all his continental dominions (Dec. 9, 1798) to France. He retained only the island of Sardinia, whither he was obliged to retire with his family. June 4, 1802, he abdicated in favour of his brother, Victor Emanuel I. and lived as a private individual at Rome, where he died in 1818, having entered the order of Jesuits in 1817. From 1806, Piedmont with Genoa was incorporated with the French empire.

3. *The Restoration and Extension of the Sardinian Monarchy by the Congress of Vienna.* Victor Emanuel returned, May 20, 1814, to Turin, his continental territories having been restored by the peace of Paris. Half of Savoy was left in the hands of the French; which, however, was restored by the treaty of Paris in 1815 (November 20), together with Monaco. On the other hand, Carouge and Chesne, with 12,700 inhabitants, were ceded to Geneva (October 23, 1816). The congress of Vienna was desirous of strengthening the kings of Sardinia, as holders of the passes of the Alps, and Britain wished to establish a commercial intercourse with the court of Turin. Genoa therefore was annexed as a duchy to the Sardinian monarchy, December 14, 1814. Victor Emanuel restored, as far as was practicable, the old constitution, re-admitted the Jesuits, subscribed the holy alliance, and established a rigorous censorship. In 1818, he confirmed the sales of the royal domains made by the French, and appropriated an annual sum of 400,000 lire for the indemnification of the emigrants, who had lost their estates. As an ally of England, he obtained a permanent and honourable peace with the Barbary powers, through the British admiral lord Exmouth. In March, 1821, in consequence of the troubles which resulted in the occupation of the country by the Austrians, he abdicated the crown in favour of his brother, Charles Felix. (See *Piedmontese Revolution.*) The measures which were adopted subsequently to the suppression of the insurrection, were directed to realize the plan of the congress of Vienna in erecting Sardinia into a partition wall between Austria and France. In compliance with the terms of the convention concluded between the Sardinian general della Torre, and the Austrian, Prussian, and Russian ambassadors, Sardinia was occupied by Austrian troops, for which Austria was to receive £281,250 a year, besides provisions. Rigorous measures were taken to extirpate "revolutionary principles," as they were styled. In the universities of Turin and Genoa, and other institutions of education, a strict supervision over the conduct of the students was maintained; the Jesuits were admitted into Savoy and the island of Sardinia; the royal schools were committed to their care, and, in 1823, the provincial college was put under their direction. The Jews were subjected to severe burdens and great disabilities. To protect the Genoese commerce against the Barbary corsairs, the whole navy of Sardinia (consisting of one frigate and eight smaller vessels) was ordered to sea, but effected nothing. Through the mediation of Great Britain, however, a peace was concluded in 1825, Sardinia agreeing to make certain presents to the dey of Algiers and the bey of Tunis. The congress of Verona (1822) provided for the gradual evacuation of the country by foreign troops, which was completed towards the close of 1823; but, at the same time, as apprehensions were entertained from the Piedmontese fugitives in Switzerland, such representations were made to the federal diet as not only to effect their removal, but to impose restrictions upon the Swiss press. Intercourse with Spain was broken even previously to the invasion of that country by the French, and the prince of Carignan (the present king), who had been banished from court on account of his conduct during the Piedmontese insurrection, served as a volunteer under the duke d'Angoulême. Still Sardinia embraced the Austrian politics with more cordiality than the French, both in regard to her domestic administration, and her Italian policy in

general. A royal edict, of 1825, prohibited any person learning to read or write, who had not property to the amount of 1500 lire (about £90), and any one studying at the university who had not as much more in the funds. Translations of the works of Göthe, Wieland, and Schiller, were also prohibited within the Sardinian states. Charles Felix died March 29, 1831, and was succeeded by Charles Albert, prince of Carignan. Some troubles broke out in Sardinia; the Genoese merchants offered the king a large sum of money to induce him to consent to the independence of Genoa; but the offer was rejected, and his majesty was actually besieged in Genoa, until relieved by Austrian troops. See the articles *Italy*, and *Italy, Travels in*, with the works there referred to; see also Manno's *Storia di Sardegna* (Turin, 1825); Mimaut's *Histoire de Sardaigne* (Paris, 1825); and de la Marmora's *Voyage de Sardaigne* (1826).

SARDONYX. See *Chalcedony*.

SARK or CERG; an island in the English channel, situated on the French coast, within six miles of Guernsey, lon. 2° 52′ W; lat. 49° 30′ N. It is about five miles in length, and three in breadth, surrounded by inaccessible rocks, except in one or two places, where the ascent for the carriage is so steep, that Governor Carteret was induced to form a subterraneous passage through the cliff, the entrance of which is secured by a strong gate, and defended by cannon. Here are some remains of a convent dedicated to St Magloire, bishop of Dol, who converted the inhabitants to Christianity in the sixth century. The French seized this island, and retained possession of it till the reign of Mary; and it was afterwards uninhabited till the next reign, when Philip de Cateret, Lord of St Ouen, planted a colony in the island: and it was held by his heirs paying a small quit-rent to the British crown. It is well watered, the climate is pure and healthy, and the soil is productive, affording corn more than is sufficient for the use of its inhabitants. The island abounds with rabbits, wild fowl, and during the season of incubation, with cliff pigeons. The only manufactures are knit stockings, gloves, and Guernsey jackets for sailors; and the inhabitants who are chiefly engaged in fishing, have some trade with Bristol. The islands of Sark and Alderney are under the same government with Guernsey. The islands of Jethou and Arne, belonging to this group, are very inconsiderable. The population of Sark is about 500.

SARMATIANS. The Sclavonians and other nations, who inhabited the northern parts of Europe and Asia, were called by the ancients *Sarmatians*. European Sarmatia comprehended (according to Gatterer, who, however, extended it too far) Poland from the Vistula, Prussia, Courland, Livonia, Russian and European Tartary, together with the Crimea; Asiatic Sarmatia embraced Asiatic Russia, Siberia and Mongolia. The Sarmatians were nomadic tribes. They were probably descendants of the Medes, and dwelt originally in Asia, between the Don, the Wolga, and mount Caucasus. They were allies of king Mithridates VI. of Pontus, even at that time were settled on the west of the Don, and afterwards extended over the country between the Don and the Danube. They were, at times, formidable to the Asiatic kings. Among the most remarkable of them were the Jazyges and the Roxolani. They carried on long and bloody, but for the most part unsuccessful, wars against the Romans. A part of them, with other barbarians entered Gaul A. D. 407; the remainder were conquered by Attila, but after his death submitted to the emperor Marcian, who assigned them a residence on the Don. Here they afterwards united themselves to the Goths, and formed with them one nation.

SARPI, Pietro. See *Paul of Venice*.

SARRACENIA, or SIDE-SADDLE FLOWER. The species of *sarracenia* are among the most singular productions of the vegetable world. They are exclusively North American, and, according to Mr Nuttall, are not found west of the Alleghanies. The leaves have the form of a long tube or funnel, conic or swollen, often containing water, and terminated by an appendage, which varies in form in the different species. The flowers resemble, in size and form, those of the splatter-dock or yellow water-lily (*nuphar)*. All inhabit marshy grounds. The *S. purpurea* is the most common species, and by far the most widely diffused, being frequently met with from Hudson's bay to Carolina: the stems are eight or ten inches high, arising from the centre of the leaves, simple, leafless, and are terminated with large flowers, of a green colour mixed with reddish-brown; the leaves have a large heart-shaped appendage, smooth externally, and covered within with scattered whitish horizontal hairs. The other species are confined to the Southern States.

SARSAPARILLA. The roots of the *smilax sarsaparilla*, and doubtless of other species of smilax (for all those plants closely resemble each other in their sensible properties), are very long and slender, with a wrinkled bark, brown externally and white within, and have a small woody heart. They are inodorous, and have a mucilaginous and very slightly bitter taste; they seem to possess no very active principle, although they have enjoyed a very high repute, at different times, as a specific in venereal and scrofulous diseases: they have sudorific and diuretic properties, but only in a slight degree Sarsaparilla is one of the ingredients of the famous Rob of Laffecteur, as well as of Swaim's Panacea and various other similar remedies. The species of smilax are very numerous in the United States of America, especially in the southern parts. They are green vines, usually spiny, with scattered leaves, and are very troublesome in the woods, in certain districts, forming impenetrable thickets. They are allied, in their botanical characters, to the asparagus, but differ widely in habit; the leaves are coriaceous or membranous, entire, nerved, and usually more or less heart-shaped; the leaf-stalks are generally provided with tendrils at the base. The flowers are diœcious, chiefly disposed in little axillary umbels, and the corolla is divided into six lobes; the male flowers have six stamens; the fruit is a small globular berry, containing three seeds, or often one or two only, by reason of abortion. The *S. China* grows in China and Japan, and the roots are employed in those countries for the same purposes, and have enjoyed the same reputation as our sarsaparilla. It is, besides, used for food. The true sarsaparilla has smooth, oval, membranous, heart-shaped leaves, and grows in Mexico, Peru and Brazil.

SARTI, Joseph, a composer, was born at Faenza, in 1729, and died in 1802. He was, for a long time, master of the chapel to Catharine II., in St Petersburg, who treated him very liberally. He composed a grand Te-Deum for the taking of Oczakow, the bass of which was accompanied by cannons of different calibre. A piece of music composed by him for Good Friday, was performed by sixty-six singers and one hundred Russian horns, besides the usual instruments.

SARTO, ANDREA DEL (his proper name is *Andrea Vannucchi*); a celebrated painter, of the Florentine school, born at Florence, in 1488. His teachers were not of a high order, and he cultivated his talents principally by the study of great masters, such as Leonardo and Michael Angelo. Some maintain that he was deficient in invention; whence, in some of his compositions, he made use of the engravings of Albert Dürer, which had then become known. He painted many pieces for his native city. Francis I. induced him, by a considerable salary, to go to France in 1518. But his extravagant wife led him into acts of ingratitude against the prince. He soon went back to Italy, and appropriated to the use of himself and his wife large sums, which had been given him, by his royal patron, to purchase the pictures of great masters in Italy. He repented, it is true, of his faults, but could not recover the king's favour. Among other works, he painted, about this time, the beautiful Sacrifice of Abraham, which has since been placed in the gallery of Dresden. The following anecdote is related of his wonderful skill in imitation.—He copied Raphael's portrait of Leo X. so exquisitely as even to deceive Giulio Romano, who had aided Raphael in the drapery. Among his most celebrated works is a Burial in the palace *Pitti*, and the Dead Saviour with Mary and the Saints, in the gallery of the grand-duke; also a beautiful Madonna, in the church of *l'Annunziata*, called *Madonna del sacco*, and several others in Florence; a Charity, now in Basle; Tobias with the Angel; and several Holy Families; the History of Joseph, in two paintings, in the Paris museum. In 1529, when Florence was taken, the soldiers, on entering the refectory which contained his picture of the Last Supper, were struck with awe, and retired without committing any violence. He died of the plague, in 1530. His colouring in fresco, as well as in oil, was full of sweetness and force: his draperies are easy and graceful. The naked, in his compositions, is excellently designed, but his figures want that force and vivacity which animate the works of other great painters, though they possess correctness, truth and simplicity. Sometimes he is too anxious to produce effect. Giacomo de Pontormo was his pupil.

SARUM, OLD; an ancient and now deserted borough in Wiltshire, two miles north of Salisbury. It was anciently a considerable city, and by the Romans called *Sorbiodunum*, though at present reduced to some ruins and intrenchments. Two members, however, up to the passing of the Reform Bill, continued to be returned to parliament by the proprietors, and the election took place in the field, on the spot where the last houses of the city stood. The present proprietor of Old Sarum (lord Caledon) paid about £60,000 for the small estate on which the borough stands. It was the original situation of Salisbury, and the bishop had a castle here; but the see was removed to the present situation of Salisbury (q. v.), in the year 1219. Before the reformation in England, the most celebrated liturgy in use in that country was that styled *secundum usum Sarum*, compiled by the bishop of Salisbury, in the eleventh century.

SASSAFRAS. See *Laurel*.

SASSOFERATO; a painter, so called from the place of his birth, a town in the duchy of Urbino, States of the Church. His true name was *Giambattista Salvi*. He was born in 1605, learned the elements of his art from his father, and afterwards studied under Domenichino, Guido and Albani. His works resemble those of the latter, and are executed with the same care. His paintings were chiefly the Madonna and Child, the latter sleeping. His heads are expressive and lovely.

SATAN. See *Devil*.

SATE; an Egyptian goddess. See *Hieroglyphics*.

SATIN; a soft, closely-woven silk, with a glossy surface. In the manufacture of other silken stuffs, each half of the warp is raised alternately; but in weaving satin, the workman only raises the fifth or the eighth part of the warp; thus the woof is hidden beneath the warp, which, presenting an even, close and smooth surface, is the more capable of reflecting the rays of light. In this way satin acquires that lustre and brilliancy which distinguish it from most other kinds of silks. The chief seats of this branch of manufacture are Lyons in France, and Genoa and Florence in Italy. From the East Indies are imported those light stuffs called Indian or Chinese satins. They are either plain, damasked, striped, open-worked, or embroidered. Both in lustre and execution, they are far inferior to the Lyonese satins; they, however, possess this peculiar property, that, even after scouring, they retain their original gloss.

SATIN-SPAR; carbonate of lime, in delicate, almost compact, white fibres. See *Lime*.

SATIRE; in the widest sense of the word, pungent ridicule or cutting censure of faults, vices or weaknesses; hence the phrase a "satirical person." In a narrower sense, in which it is more commonly used, it is a poem, of which ridicule and censure are the object and chief characteristic. This species of poetry had its origin with the Romans: the name is derived from *satur* (by no means from *satyr*), and refers, originally, to the mixture of subjects treated, and of metres used, in the earlier productions of this kind. Satire is one of the latest branches of poetry cultivated, because it presupposes not merely much natural wit, but also acute observation, and much variety of life and manners to call this wit into exercise. In fact, it is only in an advanced state of society, where folly and vice force themselves on the public eye, that a taste can exist for this species of production. As the object of satire is always castigation, it is distinguished from mere wit, which may occupy itself simply with the ludicrousness of particular relations. The form of satire is very varied. It may be in the shape of epistles, tales, dialogues, dramas (as with Aristophanes), songs, epics, fables, &c. The most common form of satire, however, is that of a simply didactic composition. The ancients wrote their satires in iambic and dactylic verse. The moderns generally use the iambus, sometimes the Alexandrine, sometimes the iambic verse of five feet, the latter sometimes with, sometimes without rhyme. The proper didactic satire originated, as we have said, with the Romans; and its inventor was Lucilius: Horace, Juvenal and Persius developed it. Vulpius, Casaubon and König have written on the Roman satire. Of the modern satirists, we may mention, among the Italians, Ariosto, Alamanni, Salvator Rosa, Menzini, Dotti, Gasparo Gozzi, Alfieri, &c.; among the Spaniards, Cervantes, Quevedo and Saavedra; among the French, Regnier, Boileau, and Voltaire, &c.; among the Germans, Seb. Brand, Ulr. Hutten, Fischart, Haller, Rabener, Lichtenberg, Falk, Wieland, &c.; among the English, Donne, Rochester, Dryden, Butler, Pope, Swift, Young, Churchill, Johnson, Peter Pindar (Wolcot), Gifford, Mathias; among the Poles, Krasiczky. The Greeks had not the proper satire. The poem of Archilochus, and that of Simonides, were more properly lampoons; and the *silli* had probably a didactic form, but were of the nature of parody. Entirely different from the satire was the *drama satyricon* of the Greeks, invented by Pratinas—a mixture of tragic, at least heroic action with comic. These dramas served as interludes and after-pieces, and had a low comic character. We possess only one —the *Cyclops* of Euripides.—See Eichstädt, *De Dramate Græcorum comico-satyrico*, &c., and Herrmann and Pinzger on the same subject.

SATRAPS, in the Persian empire; the governors of the provinces which were called *satrapies*. The term *satrap* is sometimes used to signify a petty despot.

SATURATION. A fluid, which holds in solution as much of any substance as it can dissolve, is said to be *saturated* with it. But saturation with one substance does not deprive the fluid of its power of acting on, and dissolving some other bodies; and in many cases it increases this power. The word *saturation* is also employed in another sense. The union of two principles produces a body, the properties of which differ from those of its component parts: when the principles are in such proportion that neither predominates, they are said to be *saturated* with each other; but if otherwise, the most predominant principle is said to be *subsaturated*, and the other *supersaturated*.

SATURDAY (*Saturni dies*, Saturn's day,) so called from the planet Saturn; the seventh day of the week; the *Sabbath* of the Jews. It is called by the Italians, *Sabbato*; by the French, *Samedi*; and by the Germans, *Sonnabend* (Sunday eve), or in High German, *Samstag*, a corruption of *Sabbathstag* (Sabbath day); and in Lower Germany, *Saterday*, of the same origin as the English. See *Week*.

SATURN; originally an old Italian divinity, who was afterwards confounded with the Kronos (Κρονος) of the Greeks. Uranus and Gæa (Terra) were the parents of the six Titans. The youngest of these Titans was Kronos (Time), who, when Uranus imprisoned his children, and thereby brought upon himself the anger of their mother, was instigated by her to vengeance, armed himself with a sharp knife, or sickle, and, as Hesiod says, cut off the privities of his father, whereupon Uranus was deprived of his sovereignty. The Titans set free their imprisoned brothers, and the government fell into the hands of Kronos. He then married Rhea, who bore him several sons and daughters. But, as he well knew that he should be dethroned by one of his sons, he devoured the children that were born to him. Jupiter alone, whom Rhea concealed in Crete, where Terra promised to educate him, was preserved. Rhea presented Kronos with a stone, in swaddling clothes, which he swallowed instead of the new born infant. By means of an emetic, administered to him by Terra and Metis, he threw up the stone, as well as all the children whom he had swallowed; by the assistance of whom, Jupiter made war upon him and the Titans, and dethroned him, after a contest of ten years. Kronos was, together with the Titans, confined in the dungeons of Tartarus; whence, however, according to the later poets, they were released; according to Pindar, Jupiter recognised Kronos as the lord of the Fortunate Island in the western ocean. The unknown Hesperia was considered as the land where Uranus, and the succeeding Titans, reigned. But when this land became more accurately known, Kronos, and the golden age, were transferred to Italy. Kronos now becoming blended with Saturn, Saturn was represented as dethroned, cast out from his kingdom, and flying before his son; and as having selected a place of refuge in Italy, and concealed himself in Latium (from *latere*). There the aged king Janus shared with him his throne, and Saturn built upon the Saturnian mount (afterwards the Capitoline hill) the city of Saturnia. His temple stood in the Roman forum, and in it were preserved the public treasures of the city. The Saturnian period was the golden age, which poets vied with each other in celebrating. At that time, the years rolled tranquilly away, and every moment offered an abundance of untroubled enjoyment. Saturn has also been made the father of Chiron, the Centaur.

SATURN. (See *Planets*.) The thickness of the ring of the planet Saturn has lately been estimated by the German astronomer Bessel, at $29\frac{7}{10}$ German miles (15 to a degree), $128\frac{8}{10}$ English geographical miles.

SATURNALIA; a feast among the Romans, in commemoration of the happy period under the reign of Saturn, when freedom and equality prevailed, when truth, confidence, and love, united all, and violence and oppression were unknown. It continued, at first, one day; then three; afterwards five; and finally, under the Cæsars, seven days, viz. from the 17th to the 23d of December. The festival began as soon as the woollen bands which had bound the feet of Saturn's statue through the year were removed. At the commencement of this festival, a great number of wax tapers were lighted in the temple of Saturn, as a sign that no more human victims were to be sacrificed. The slaves were freed from restraint during this season, wore caps as badges of freedom, and went about dressed in tunics, adorned with purple, and in white togas. Masters and slaves changed places; and while the servants sat and banqueted at the tables, they were waited on by their masters and their guests, who, if they did not do this, were obliged to submit to all sorts of ridiculous punishments. Jests and freedom every where prevailed; and all ceased from their various occupations. In the last days of the festival, which were added in later times, presents were sent from one to another, particularly little images of the gods, *sigilla* (seals), &c.; whence these days were sometimes called *Sigillaria*, and persons were greeted with the acclamations of "*Io Saturnalia! bona Saturnalia!*" Some prisoners were also set free, who dedicated their chains to Saturn.

SATYRS. The Greek mythology includes, under the name of *Satyrs* (σατυροι, τιτυροι), as well as under those of *Sileni*, *Fauns*, and *Pans*, a species of beings who approach, more or less, to the nature of brutes, and particularly to the form of the goat. They were, originally, Peloponnesian wood-gods. The development of the idea of these beings is due to the Attic drama, and the *drama satyricon* in particular. The early Greeks pictured them as long-eared, bald-headed, and as having small protuberances behind their ears. Later artists made them like Pan, giving them horns and goats' feet. (See Voss's *Mythological Letters*, 2d vol. page 30.) In the representation of them by some artists, the brute characteristics, such as goats' feet, a tail pointed ears and horns, predominate. Others mainly preserve the human form, and resemble the brutes only by their goats' ears and tails, and sometimes by the introduction of little horns, in the first stages of their growth. To this we must add, however, the general cast of the face, the cheek-bones, the beard, and the flesh hanging down upon the neck from the ears. At other times, the brute characteristics are softened into a mere clownish, rude, and awkward human form. The common difference made between the Fauns and Satyrs is, that the former are represented with pointed ears and short tails; the latter, on the contrary, appear with goats' feet. The Sileni are considered to be the old Fauns. This is, however, erroneous. The Satyrs of the Greeks were, in fact, equivalent to the Fauns of the Romans. The whole race of Satyrs, Sileni, Fauns, and Pans, were generally regarded, among the ancients, as divinities of the woods and rural places, and grew up from different notions. The Satyrs and Sileni were the attendants of Bacchus, the signification of which cannot be determined, as the origin of these representations was early lost. Perhaps the idea of them arose from men dressed in the skins of beasts; or perhaps they were only symbolical, and intended to represent man in a rude state. The parents of the Satyrs were considered, by some, to be Mercury and the nymph Iphtime; but, according to others, they were Bacchus and the naiad Nicæa. They were wanton, and were extremely fond of music; and, at the festival of Bacchus, always appear dancing and playing on musical instruments.

SAUCISSE, in the military art, is a long train of powder sewed up in a roll of pitched cloth or leather, serving to set fire to mines. To every mine there are generally two, that if one fail the other may take effect. Their length is determined by circumstances.

SAUCISSION, in fortification, a kind of fagot made of thick branches of trees, bound together, to cover the men while exposed to the enemy's fire, when on some hazardous employment. It is also used to repair breaches, stop passages, and make traverses over wet ditches.

SAUKS, OR SACS. See *Indians, American.*

SAUL. See *Paul.*

SAUL; king of Israel about 1050 B. C. He was descended from an humble family of the undistinguished tribe of Benjamin, but was noted for his personal beauty and courage, and, when the people became dissatisfied with the theocratico-republican constitution, was selected by Samuel for their king. He was not acknowledged by the whole people until after he had gained a victory over the Ammonites. Repeated successes over the Philistines, Edomites, Moabites, Ammonites, and even over a king beyond the Euphrates, confirmed his authority. But Samuel, who had reluctantly parted with the supreme power, continued to keep up a party in the nation, and, being offended by the encroachments of the king on the privileges of the priesthood, and by his disobedience to the commands of Jehovah in a war against the Amalekites, secretly anointed David as king. Saul discovered his rival, and his hatred against him was increased by the reputation which the latter acquired by his warlike exploits. A civil war, which broke out between the partisans of David and those of Saul, was terminated by the death of the latter, who, after the defeat of his forces by the Philistines, fell upon his own sword. The history of Saul's frenzy has furnished Alfieri with the subject of one of his masterpieces—Saul, a lyric Tragedy.

SAUMAISE. See *Salmasius.*

SAUNDERSON, NICHOLAS; a celebrated blind mathematician, born at Thurlston, in Yorkshire, in 1682. When a year old, he entirely lost his eyesight through the small-pox. Notwithstanding this privation, he acquired a knowledge of Latin and Greek, and, having pursued his studies for some time, with the assistance of friends, he was, in 1707, sent to Cambridge. He took up his residence at Christ's college, and soon commenced giving lectures on optics. He became acquainted with sir Isaac Newton, and was chosen mathematical professor. He died in 1739. His treatise on algebra was published after his death, at Cambridge (1740, 2 vols.). He left other works in an imperfect state, among which were comments on Newton's *Principia*, which were published at the end of his posthumous treatise on Fluxions (1756, 8vo.).

SAURIN, JAMES, a French Protestant preacher, was the son of a lawyer at Nismes, and born in 1617. Upon the revocation of the edict of Nantes, in 1685, his father retired with his family to Geneva, where the subject of this article made a considerable progress in learning, but quitted his studies, and went into the army. When the duke of Savoy, under whom he served, made peace in 1696, he returned to Geneva, with a view to engage in the ministry. In 1700, he visited England, where he preached nearly five years to his fellow refugees in London. He subsequently became pastor to a congregation of French refugees, who assembled in a chapel belonging to the prince of Orange, at the Hague. He died in 1730, at the age of fifty-three. This eminent preacher possessed great talents, and a fine address: his voice was strong, clear and harmonious, and his style pious, unaffected and eloquent. He had the happy art of adapting his arguments, with great skill, to the understanding of the audiences before whom he spoke, and was persuasive and pathetic, or plain, clear, or argumentative, as best suited his subjects or his hearers. His principles were those of moderate Calvinism. He was the author of twelve volumes of Sermons (8vo.), selections from which were translated into English, and published, between 1775 and 1784, in five volumes, by Mr Robert Robinson (with a Memoir), a sixth being added, in 1796, by doctor Henry Hunter. Among his other works are Christianity in France (8vo.); Compendium of Christian Divinity and Morality; Discourses on the most Remarkable Events of the Old and New Testaments. Of this, his most considerable work, he nearly completed three volumes folio; to which Roques added a fourth on the Old Testament, and Beausobre two more on the New Testament.

SAUSSURE, HORACE BENEDICT DE, a celebrated naturalist, was born at Geneva in 1741, and distinguished himself so much at the age of twenty-two by his proficiency in the mathematical and physical sciences, as to be appointed professor of philosophy in his native place. He continued to discharge the duties of this office, for twenty-five years, with reputation. The leisure which his duties left him was occupied in scientific journeys to the volcanic region of France, to the south of Italy, and to England. A favourite object of his investigations was the structure and height of mountains; and to him we are indebted for the invention of several philosophical instruments; as, for instance, an electrometer, a hygrometer, heliothermometer, &c. In 1779 he had ascended the Alps fourteen times in eight different places, and in 1787 he ascended Mont Blanc, and determined its height by barometrical measurements. Saussure died in 1799. Among his writings, his *Essais sur l'Hygrométrie*, and his *Voyages dans les Alpes* (4 vols., 1779—96,) are the most valuable.

SAUSSURITE is a massive or compact mineral found in large masses in the Monte Rosa; in Corsica; in the Bacher mountain in Lower Stiria, and in Bayreuth. In certain varieties, traces of cleavage parallel to the sides of a prism of 124°, and to the shorter diagonal of such a figure, are observable. Fracture uneven, splintery; lustre pearly, inclining to vitreous; colour white, passing into mountain-green; streak white; brittle; frangible with much difficulty; specific gravity 3·25. It consists of silex 49, alumine 24, lime 10, magnesia 3·75, oxide of iron 6·50, and soda 5·50.

SAVAGE, Richard, an English poet of the last century, celebrated for his genius, irregularities and misfortunes, was born in London, about 1698. The singular story of Savage, adorned as it is by the pen of his intimate friend, doctor Johnson (Lives of the Poets), has acquired great celebrity; but there is reason to believe that a great part of it is utterly fictitious. Savage was probably the son of a woman who had been employed to nurse a natural son of the countess of Macclesfield by earl Rivers. That lady always asserted—and there is no good cause for doubting it—that her child died while quite young, and that Savage was an impostor. Johnson's account, taken from Savage himself, is, that no sooner did he see the light, than a most unnatural hatred took complete possession of his mother; that he was placed with a woman in the lowest state of indigence, with directions that he should be brought up in ignorance of his birth, and in the meanest condition; that the interference of his maternal grandmother, lady Mason, a little alleviated his lot; and through her kindness he was placed at a grammar school in the neighbourhood of St Alban's, during which period earl Rivers died, revoking a bequest he had made him, on being assured by the countess that her child had been some time dead; and that his mother endeavoured to have him kidnapped and sent as a slave to the plantations. He was an apprentice to a shoemaker (this is true), when the woman, whom he had been taught to consider his mother, dying suddenly, some of lady Mason's letters, among her papers, discovered to him, as he pretends, the secret of his birth; or, as appears probable, suggested to him the plan of assuming to be the child of lady Macclesfield, whom his mother had nursed, and to whom these letters really related. He now became an author for the means of bodily subsistence. His first work was a pamphlet on the Bangorian controversy, which was followed by two comedies, Woman's a Riddle, and Love in a Veil, which procured him the acquaintance of Sir Richard Steele and Mr Wilkes. In 1723, his tragedy, on the subject of Sir Thomas Overbury, was brought out; the author himself performed the principal character, but with little success; the profits of the piece, however, appear to have amounted to about £200. The poet was now rising in reputation, when, in 1727, in a broil in a house of ill fame, he killed a Mr Sinclair; and, being tried for murder, a verdict of guilty was pronounced against him. Through the influence, however, of lady Hertford, the king's pardon was granted him. Soon after, lord Tyrconnel received him into his house, and allowed him two hundred pounds a year. In 1729, he published his Wanderer, a Moral Poem. A quarrel with his patron once more turned him adrift upon the world, and he now brought out The Bastard, a poem of merit. A Birth-day Ode, addressed to the queen, procured him a pension of fifty pounds from her majesty, to which he was eventually mainly indebted for his support. A satire against the clergy, entitled the Progress of a Divine, caused a prosecution to be instituted against him; but the information was dismissed. From this period, he appears to have sunk into the lowest misery. The death of the queen, and the loss of his pension, completed his ruin; and, although a few friends raised a subscription, with a view of enabling him to reside in Wales, the same propensity to dissipation induced him not only to squander the money advanced to him, but to incur a debt of eight pounds at Bristol; for which he was arrested, thrown into the county jail, and eventually removed to Newgate, where he died in 1743. Although Savage at one time received an allowance of fifty pounds a year from Mrs Oldfield, and repeatedly extorted considerable sums of money from lady Macclesfield by threats of lampooning her, besides other sums from the admirers of his genius, his extravagance always kept him poor; and it is well known that he was the friend and companion of Johnson at the time when the latter was sleeping in the streets of London, houseless and pennyless. For the true character and history of Savage, see Galt's *Lives of the Players* (London, 1831, 1st vol.).

SAVANNAH; a river which forms the north-east boundary of Georgia, and separates it from South Carolina. It is formed by the junction of the Tugalo and Kiowee, 100 miles by the course of the river above Augusta. The largest vessels come up to Five-fathom Hole, within three miles of the city of Savannah, eighteen miles from the ocean; large brigs come to the wharves; steam-boats of 150 tons ascend to Augusta, about 250 miles by water, and 127 by land; and pole-boats ascend 100 miles farther, and then fifty miles on the Tugalo branch. Boats on this branch carry from thirty to sixty bags of cotton, and return with eight or ten tons of merchandise. Tides flow up twenty-five miles.

SAVANNAH; a city of Georgia, and port of entry, in Chatham county, on the south bank of Savannah river. It is built on a sandy bluff point, forty feet high. It was laid out by general Oglethorpe in 1733. The town is regularly built; the streets are wide, and ornamented with the China tree. The chief part of the exports and imports of the state are landed here. In 1829, it contained ten houses of worship, an exchange, a court house, a jail, a poor house, an hospital, a theatre, an academy, two state banks, and a branch of the United States bank. Two of the churches are for Africans; and one of these has more than 2000 members attached to the congregation. Population in 1830, 7303; lat. 32° 2′ N.; lon. 81° 3′ W.

SAVILE, Sir Henry, one of the most elegant scholars of his age, was born in 1549, and, after graduating at Brazen-nose college, Oxford, removed on a fellowship to Merton college, in the same university. In his twenty-ninth year, he made a tour on the continent, for the purpose of perfecting himself in elegant literature, and, on his return, was appointed tutor in Greek and mathematics to queen Elizabeth. Seven years after, the wardenship of his college, which he held for about six-and-thirty years, the provostship of Eton being added to it in 1596, was conferred on him. In 1619, he founded two professorships, in geometry and astronomy, at Oxford, besides conferring several other valuable benefactions, both in property and books, many of the latter forming still a part of the Bodleian library. Among his works, the principal are his Commentaries on Roman Warfare; *Rerum Anglicarum post Bedam Scriptores; Prælectiones in Elementa Euclidis;* and his edition of the writings of St Chrysostom, in eight folio volumes. Sir Henry Savile was the correspondent of J. Scaliger, Meibomius, Isaac Casaubon, and most of the learned men of his day. His death took place in 1622.

SAVILE, George, marquis of Halifax, a statesman and writer, was born in 1630. On the death of Cromwell, he distinguished himself by his exertions in favour of the absent king, and on the restoration was raised to the peerage. He was removed from the council in 1675, through the influence of the duke of York (see *James II.*), in consequence of his opposition to that prince's measures in favour of the Roman Catholic religion. But when the bill for excluding the duke from the succession was in agitation, his repugnance to that measure brought him into disgrace with the party with which he had hitherto acted. In 1682, he was created marquis of Halifax, keeper of the privy seal, and president of the council, which dignities he retained in the early part of the succeeding reign, till his opposition to the proposed repeal of the test acts caused his abrupt dismissal. From this moment lord Halifax continued in opposition, till the flight of James II., when he was chosen speaker of the house of lords in the convention parliament, and contributed mainly to the elevation of William III. to the throne. But, soon after the revolution, he resigned the privy seal, and, during the remainder of his life, voted against the court. A mortification in the bowels carried him off in 1695. He was the author of Advice to a Daughter, and of a variety of political tracts, the principal of which are, Maxims of State; the Character of a Trimmer; Character of King Charles II.; Anatomy of an Equivalent; Letter to a Dissenter, &c.

SAVIN. See *Juniper.*

SAVINGS BANKS. See *Banks.*

SAVONAROLA, Geronimo, an Italian monk, celebrated for his eloquence, and his melancholy fate, was born at Ferrara, September 21, 1452, and was designed for the medical profession. Religious enthusiasm led him, at the age of fourteen, to leave his father's house secretly, and enter the order of Dominicans. Several years later, he began to preach at Florence, but with so little success that he determined to abandon the pulpit; and, retiring to Bologna, he devoted himself to metaphysical and physical studies. The reputation of his talents and learning induced Lorenzo de' Medici to invite him to return to Florence. Here Savonarola began to preach again; and his discourses attracted such crowds that the church could not contain them. His extraordinary sanctity and his powerful eloquence gained him great influence over the minds of the Florentines, and he was emboldened to assume a prophetic tone, and to urge with vehemence, and in public, the necessity of a reform in the church. The multitude looked upon him as divinely inspired, while some ridiculed him as a fanatic, and others denounced him as an impostor. He soon broke off all connexion with his patron Lorenzo, whose character he assailed, with prophecies of his approaching fall. He refused to make the customary visit to that chief, which it was his duty to do as prior of St Marks, and, when Lorenzo went himself to St Marks, refused to see him. Although Lorenzo de' Medici was repeatedly urged to adopt severe measures against him, he refused, either from lenity, or from his respect for the character of the preacher. When Lorenzo lay on his death-bed (1492), Savonarola obtained admission to him, and spoke to the dying man with the dignity of his office. After the death of Lorenzo, and the expulsion of his son Pietro, Savonarola took the most active part in the political affairs of Florence. He put himself at the head of those who demanded a more democratical form of government, asserted that God had commissioned him to declare that the legislative power must be extended to the citizens, that he himself had been the ambassador of the Florentines to heaven, and that Christ had consented to be their king. The newly elected magistrates accordingly laid down their offices, and the legislative functions were intrusted to a council of the citizens, which chose a committee of their own number for the discharge of the duty. Dissensions, however, distracted the new republic; the aristocratical and democratical parties persecuted each other with great fury, the former consisting of the friends of the old order of things, and the latter of the devout admirers of the monk. But the zeal of Savonarola was not content with revolutionizing Florence; he meditated the reform of the Roman court, and of the irregularities of the clergy. The pontificate of Alexander VI. could not fail to supply causes of complaint on both heads. He accordingly wrote, as his eulogists assure us, to the Christian princes, declaring that the church was going to ruin, and that it was their duty to convoke a general council, before which he was ready to prove that the church was without a head, and that the reigning pope was not a true bishop, had never been worthy of the title, nor even of the name of a Christian. Alexander excommunicated him, and the bull of excommunication was read in the cathedral at Florence; but Savonarola despised the thunders of the Vatican, and continued to preach. His influence was still further increased by the failure of an attempt of Pietro de Medici to restore his family authority. But another party had, meanwhile, arisen in opposition to him. His innovations in St Mark's and other monasteries had excited the enmity of the monks, especially of the Franciscans of the strict observance, who denounced him from the pulpit as an excommunicated heretic. Fra Domenico da Rescia, a monk of his convent, offered, in the heat of his fanatical zeal, to prove the truth of his master's doctrines, by passing through fire, if one of his opponents would undergo the same ordeal in defence of their opinions. The challenge was accepted by a Franciscan monk, and Savonarola, with his champion, appeared at the head of a large procession, chanting the Psalm lxviii, "Let God arise, and let his enemies be scattered." The Franciscan also presented himself, the fire was kindled, and Domenico was ready to enter the flames, bearing the host in his hands. But the crowd exclaimed against this sacrilege, as they termed it; and, as Domenico persisted in his determination, he thus happily escaped the ordeal for which he had offered himself. But this event was fatal to Savonarola. The people loaded him with insults, and he was finally thrown into prison. A spiritual court, under the direction of two papal commissioners, was held for his trial. His firmness and eloquence at first threw his judges into confusion, but, being examined on the rack, he confessed that he had falsely arrogated supernatural powers. He was condemned, with some of his adherents, to be first strangled, and then burnt, and the sentence was executed May 23, 1498, in presence of a large multitude, some of whom considered him as a martyr and a saint. This extraordinary man left, besides letters, a Treatise against Astrology, and several philosophical and ascetical works (*Opera*, Lyons, 1633—40, 6 vols.) His sermons (*Prediche*, Florence, 1496), though wanting in the characteristics of finished discourses, contain powerful and stirring passages. See *Reformation.*

SAVOY (*Savoia*, Italian; *Savoie*, French); a duchy belonging to the Sardinian monarchy (see *Sardinia*), and bordering on France, Switzerland, and Piedmont, with a superficial extent of 3750 square miles, and a population of 501,165. The greatest part of the duchy consists of lofty mountains and forests, alternating with deep and narrow valleys. The Cottian and Pennine Alps belong in part to Savoy, and the Gray Alps separate it from Piedmont. (See *Alps.*) Mont Blanc, the loftiest summit in Europe, is in Savoy. The Iseran, the Little St Bernard, and mount Cenis, over which an artificial road leads from Savoy to Piedmont, are also in this duchy. (See *Alps, Roads over.*) Many of the summits are covered with perpetual snow and ice. Savoy is watered by the Rhone, the Isere, the Avre, which flows through the vale of Chamouni and the Arc. The lake of Geneva is on the borders. The smaller lakes are those of Bourget and Annecy. Near the lake of Bourget is an intermittent spring, called the Miraculous Fountain, which ceases to flow during periods varying from twenty minutes to towards three hours. The climate is very changeable, and in the course of a day the severest cold is often succeeded by a great heat. The soil is mostly rocky, and far from fertile; but where it is susceptible of being brought into cultivation, it yields corn, though insufficient to supply the inhabitants, potatoes, hemp, flax, wine, chestnuts, and orchard fruits. The forests are extensive, and the pastures good; grazing is therefore much attended to. Game, the marmot, chamois, and ibex, are found in the mountains. Among the mineral productions are silver, copper, lead, iron, coal, and salt. The Savoyards speak a mixture of French and Italian. They are honest, faithful, frugal, and industrious, but poor. They are often compelled to quit their ungrateful soil for a subsistence (as porters, pedlars, &c.), but generally return with their earnings to their country. Chamberry, the capital, with 11,991 inhabitants, is the only considerable town. Savoy was anciently inhabited by the Allobroges. It was under the Roman dominion till 400, belonged to Burgundy till 530, to France till 879, to Arles till 1000, when it had its own counts, and, in 1416, was erected into a duchy. In 1792, it was conquered by the French, and incorporated with France, as the department of Mont Blanc. It was partly ceded to Sardinia by the first peace of Paris (1814), and by the second (1815), the remainder was given up to the Sardinian monarchy. See Cribario's *Notizie sopra i Principi di Savoia* (Turin, 1825).

SAW-FISH (*pristis antiquorum*); a fish of the family of sharks, remarkable for having the head prolonged in the form of a long, flat plate, having strong osseous spines implanted like teeth on each margin, the whole bearing some resemblance to a saw. This forms a powerful weapon, with which it attacks whales and other cetaceous animals, towards whom this fish seems to bear an inveterate hostility. The habits of the saw-fish are otherwise, as well as their organization, the same as those of the shark. It grows to the length of twelve or fifteen feet. The flesh is hard, coriaceous, and ill-tasted. Several species of saw-fish are now known. They inhabit all seas, from the polar ice to the equatorial regions.

SAW-GIN. See *Cotton.*

SAXE, MAURICE, count de, a celebrated military officer, was the natural son of Augustus, king of Poland, by the countess of Konigsmark. He was born at Dresden in 1696, and even in childhood displayed some presages of his warlike genius. At the age of twelve, he joined the allied army under the duke of Marlborough and the prince Eugene, and was present at the sieges of Lisle and Tournay, and at the battle of Malplaquet. His father then gave him a regiment of cavalry, with which he served in Sweden, and was at the taking of Stralsund. His mother procured his marriage with a German lady of rank, when he was but fifteen; but the inconstancy of his temper occasioned a divorce after a few years. He was with prince Eugene, in Hungary, in the war with the Turks; but, after the treaties of Utrecht and Passarowitz, he withdrew to France, and was permanently attached to the service of that country by a brevet of *mareschal-de-camp*, given him in 1720, by the regent duke of Orleans. He applied himself to study at Paris, and made himself intimately acquainted with professional tactics. In 1726, he was a candidate for the duchy of Courland; and he formed various other schemes of ambition at different periods. On the death of his father, he declined the command of the Saxon army, offered him by his brother Augustus III., and joined the French on the Rhine, under the duke of Berwick. He distinguished himself at Dettingen and Philipsburg, and, in 1744, was rewarded with the staff of a marshal of France. He was employed in the war that followed the death of the emperor Charles VI., and, in 1745, gained the famous battle of Fontenoy, which was followed by the capture of Brussels, and many other places in Flanders. In 1747, he was victorious at Lafeldt, and, in the following year, took Maestricht, soon after which the peace of Aix-la-Chapelle was concluded. Marshal Saxe survived that event a little more than two years, dying November 30, 1750. He wrote a treatise entitled *Mes Rêveries*, on the art of war (2 vols., quarto.) General Grimoard, in 1794, published *Lettres et Mémoires choisis parmi les Papiers originaux du M. de Saxe, depuis* 1733 *jusqu'en* 1750 (5 vols., 8vo.) For a full account of the biography of this distinguished officer, see his life by M. d'Espagnon, in two volumes, 12mo.

SAXE-COBURG, SAXE-GOTHA, SAXE-MEININGEN, SAXE-WEIMAR, SAXE ALTENBURG, SAXE-HILBURGHAUSEN. See the articles *Coburg*, *Gotha*, *Meiningen*, *Weimar*, *Attenburg*, *Hilburghausen*, and *Saxony*.

SAXIFRAGE. The species of *saxifraga* are small herbaceous plants, with leaves entire or divided, ordinarily crowded about the base of the stem; the small, delicate flowers are usually disposed in a raceme or panicle. These plants are chiefly confined to cold climates and mountainous situations: many of them contribute largely to ornament the cold and desolate regions near the verge of perpetual snow, or within the arctic circle. The name is supposed to be derived from growing in the clefts of rocks. Many are of easy cultivation, and have long been favourites in the gardens; but the majority are delicate, and are liable to injury from mild and humid weather during the winter months.

SAXO GRAMMATICUS; a learned historian, who flourished in the twelfth century. He is supposed to have been a native of Denmark, of which kingdom, and its dependencies, he compiled an elaborate history, under the auspices of Absalom, bishop of Roschild. This work, which is said to have occupied him twenty years in its composition, has gone through several editions, especially those of Paris, 1514, Basle, 1534, and Sora in Denmark, 1644, folio; of these the latter is by far the most perfect. Saxo was a priest in the cathedral of Roschild, and is said to have been deputed on a mission to Paris, in 1161, for the purpose of inducing some of the monks of that capital to visit his native country, and assist in reforming the discipline of the religious orders there. He died in 1208.

SAXONS, LAND OF THE. See *Transylvania*.

SAXONS, SAXONY. Although the Saxons are first mentioned by Ptolemy, yet it cannot be doubted that they belong to the great northern German races, whose inroads into the Roman territories rendered the name of Cimbrians and Teutones so formidable. In the third century of the Christian era, they were a numerous, warlike, and piratical people, whose devastations on the British and Belgian coasts gave rise to the appointment of a particular officer (*comes littoris Saxonici*) to defend these regions. In the middle of the fifth century, two considerable hordes of Saxons, under Hengist and Horsa, laid the foundations of the Saxon kingdoms in Britain. (See *Britain* and *Anglo-Saxons*.) Those who remained in Germany, the Westphalians, Eastphalians, and Engrians, occupied a great extent of country, of vague and varying limits, which bore the general name of Saxony (*Sachsen*). Charlemagne waged a thirty years' war against the Saxons; and Wittekind, their national hero, with many of his countrymen, submitted to his arms, and embraced Christianity. (See *Germany, History of*.) In 845, mention is made of a duke of Saxony; and in the new kingdom of Germany, the Saxons were the most powerful of the six German nations, viz. the Eastern Franks, Saxons, Frisians, Thuringians, Suabians, and Bavarians. In 919, Henry, duke of Saxony, was elected German king (see *Henry I.*), and transmitted this dignity to his son, grandson, and great-grandson. (See *Otho I.* and *Otho II.*) The duchy afterwards passed (1125) to the Bavarian branch of the Guelf family, of which Henry the Lion (q. v.), celebrated for his contest with the emperor, was a member (1146—1195). After several changes, which it is unnecessary to enumerate here, Frederic the Warrior, margrave of Meissen and langrave of Thuringia, became (1424) duke and elector of Saxony. (See *Elector*.) The union of these three countries rendered the Saxon elector one of the most powerful princes in Germany. After the death of Frederic the Good, son of Frederic the Warrior, Ernest and Albert, sons of the former, divided the family possessions between them (1485), and founded the Ernestine and Albertine Saxon lines, which still exist. The latter received Meissen, or Misnia, and now constitutes the royal Saxon house. (See *Saxony, Kingdom of*.) The former retained the electoral dignity and Thuringia. Ernest was succeeded in the electorate by his sons Frederic the Wise (1486—1525) and John (1525—1532). The former is celebrated as the protector of Luther, the promoter of the reformation and the founder of the university of Wittenberg. But for his prudence, firmness, and personal influence with Maximilian and Charles, Luther would probably have met the fate of Huss. (See *Reformation*.) By the Wittenburg capitulation (May 19, 1547), the electoral dignity was transferred to the Albertine line, in the person of Maurice. (See the following article, and *Maurice*.) The Ernestine house is now divided into the two branches of Weimar and Gotha, the latter of which consists of the three lines of Meiningen, Altenberg and Coburg. (See the separate articles.) Towards the close of the fifteenth century, Germany was divided into circles; and the large tract of country, known vaguely by the name of Saxony, was formed into the three circles of Upper Saxony, Lower Saxony and Westphalia. Upper Saxony was bounded by Poland, Silesia and Lusatia on the east, and by Franconia and Bohemia on the south. It comprised the electorates of Saxony and Brandenburg, the duchy of Pomerania, and a number of small principalities. Lower Saxony had Westphalia and the Rhine to the west, and Sleswick with the Baltic to the north, and comprised the electorate of Hanover, the duchies of Mecklenburg, Brunswick and Holstein, the free cities of Hamburg, Bremen and Lübeck, with several smaller states. By the dissolution of the empire in 1806, the distinction of circles was abolished.

SAXONY, KINGDOM OF, lying in the north-east part of Germany, is bounded on the south by Bohemia, on the east and north by Prussia (the duchy of Saxony), and on the west by the Saxon principalities and Bavaria. It is divided into five circles—Meissen, Leipsic, Erzgebirge, Neustadt and Upper Lusatia—with a superficial extent of 5800 square miles, and a population (1828) of 1,414,528. The capital, Dresden, has 56,000 inhabitants, Leipsic 40,700. Chemnitz (16,000), Freyberg (12,000) and Bautzen (11,000) are the only other places with a population exceeding 10,000 inhabitants. The face of the country is, to a great degree, mountainous. The Erzgebirge, which forms the boundary between Saxony and Bohemia, is more abrupt on the Bohemian than on the Saxon side (see *Erzgebirge*), and most of the hills are green even to their summits. The climate is as mild as that of any part of Europe in the same latitude. The soil is of moderate fertility. The mountainous districts in the south contain extensive forests, which are kept up with care, as the chief supply of fuel for the mines; coal and turf being much used for domestic fuel. In these districts, the valleys only are well cultivated; but in the level districts of the north, tillage is general. The products are wheat, barley, oats, and other grain, some tobacco and hops, and, in a few favourable situations, grapes. The Elbe is the only navigable river. The other rivers are the two Muldas, the two

Elsters, the Queiss, &c. Saxony is rich in minerals; silver, cobalt, lead, iron, copper, zinc, arsenic and quicksilver are among the metallic productions; other minerals are topaz, chrysolites, amethysts, agates, cornelians, garnet, cinnabar, porcelain-clay, &c. The chief mining operations are carried on in the Erzebirge, and are under excellent management. (See *Freyberg*, and *Mine.*) The value of the raw material produced is about 1,100,000 dollars, which, by the processes of industry, acquires a value of 3,000,000 dollars; 10,000 men are employed in mining, and 50,000 in the subsequent processes. Of the domestic animals, the chief attention has been bestowed on the sheep, which constitute one of the chief sources of national wealth in Saxony. The Merino breed was introduced into the country in 1765, and the native breed has been improved to a wonderful degree. The number of sheep in the kingdom is estimated at two millions, yielding annually upwards of 4,500,000 pounds of wool. Hogs are numerous, but not sufficient for domestic consumption. The inhabitants are, with the exception of 2000 Jews and 34,000 Wends, of German origin, and are distinguished for intelligence, industry and honesty. The language is intermediate between High and Low German (See *German Language*); that of the inhabitants of Dresden is the best, though it is an error to suppose that the purest German is spoken there. Saxony was the cradle of the reformation. The Lutherans are 1,348,100; Roman Catholics, 48,000; Greek Catholics, 100; Calvinists, 300; Herrnhutters, 1600. The royal house has been Catholic since 1697. The nobility enjoys exemptions from some taxes, tolls, &c., and some feudal rights and privileges. The peasants are some of them subject to feudal services, and in some instances are serfs. The Saxon peasant is loaded with taxes, and is not allowed to engage in the trades, which are carried on by the citizens or the inhabitants of the towns, who are not nobles. Literary men, preachers, professors and teachers likewise have particular privileges. In no country of Europe is education more attended to than in Saxony, and in no country, of equal extent, is the number of printing and book establishments so great. The university of Leipsic is the principal institution for education. There are common schools in all the parishes, and the lower classes are, very generally, taught to read and write; in some of the larger towns, there are also free schools for the poor. In addition to these, there are two princely schools (*Fürstenschulen)*, founded from the revenues of suppressed convents, for the higher branches of education, fifteen gymnasia, two teachers' seminaries, one mining academy, one forest academy, and three military schools. There are also numerous public libraries, among which are that of the university of Leipsic, and the royal library at Dresden, with 220,000 printed books and 2700 manuscripts. The manufactures and trade are of greater extent than in most inland countries. The weaving of linen is an employment of old date, and is carried on in almost every village: woollens are also manufactured in a number of towns; but both of these branches of industry have somewhat declined. Cotton spinning and weaving increased, to a great extent, towards the close of the last century; but the conveyance of the raw material is tedious and expensive. The manufactures connected with the mines are extensive. There are cannon founderies at Freyberg and Dresden; cobalt is made into smalt; blue-dye, verdigris and green-dye are among the articles of manufacturing industry. The exports consist of wool and minerals, in a raw state, and of linen, yarn, woollens and lace. The imports are silk, flax, cotton, coffee, sugar, wine, and sometimes corn. The revenue, which is derived partly from taxes, and partly from the regalia and royal domains, amounts to 4,500,000 dollars; the debt is 12,800,000. The peace establishment of the army consists of 13,300 men; the contingent to the German confederacy of 12,000. The government of Saxony is a monarchy, limited by the privileges of the estates. The margraviate of Upper Lusatia has separate estates. Those of the hereditary lands consist of the prelates and higher nobility, the gentry and the burgesses. The estates have the power of laying taxes and advising on subjects of public importance. The higher offices of administration are intrusted to a privy cabinet, with three cabinet ministers, for foreign affairs, for the home department, and for war; the privy council, the board of finance, the military board, the department of internal administration *(Landesregierung*), the court of appeal for judicial questions, the board of taxes, and the ecclesiastical council and supreme consistory. In June, 1831, a new constitution was promised. The king of Saxony has the fourth vote in the German diet, and four votes in the *plenum.* The present king, Anthony I., born 1755, succeeded his brother in 1827. In consequence of the commotions in Dresden and Leipsic, in September, 1830, he associated his nephew Frederic Augustus (born 1797) in the government, as co-regent, the father of Frederic resigning his claims to the succession in favour of his son. His predecessor was Frederic Augustus, his brother, created king of Saxony in 1806. There are three Saxon orders; that of the Saxon crown *(Rautenkrone)*, founded in 1807; that of St Henry (1736), for military merit: and the civil order of merit (1815).

We have already given a sketch of the early history of the country in the preceding article: we shall here continue the sketch from the foundation of the Albertine line, which now occupies the Saxon throne. Maurice, grandson of Albert, was put in possession of the duchy of Saxony and the dignity of elector by Charles V. His brother Augustus (1553—86) made important accessions to the Saxon territories, and introduced many useful changes in the administration of the government. John George, his grandson (1511—56), joined Gustavus Adolphus in the thirty years' war; and the combined Swedish and Saxon forces defeated the imperials, under Tilly, in the battle of Breitenfeld (1631), and, under Wallenstein, in that of Lützen (1632). Misunderstandings between the elector of Saxony and the chancellor Oxenstiern (q. v.) threw the former into the arms of the emperor; and, by the treaty of Prague (May 30, 1635), Saxony obtained from Austria a cession of the two Lusatias, besides other advantages. Frederic Augustus I. (1694—1733) embraced the Catholic religion (1697), to obtain the crown of Poland. But Charles XII. conquered Poland, and occupied Saxony, subjecting it to heavy impositions; while, by the peace with Sweden, the latter country received no indemnification for its losses. (See *Northern War.)* Frederic Augustus II. (1733—1763) also obtained the crown of Poland (as Augustus III.), after a war with France, and took part with Austria in the seven years' war. The peace of 1763 left the country, which had suffered severely during the war, loaded with a debt of more than twenty million dollars. It now became necessary for the government to renounce its ambitious schemes, and endeavour to lessen the pressure of the public burdens. Frederic Augustus III. (1763—1827) reluctantly took part in the war of 1792, against France, and furnished only his contingent as a member of the empire, when war was declared by the imperial diet (1793). In 1806, 20,000 Saxons were sent to the support of Prussia; but after the battle of Jena, a peace was concluded with France, and the elector acceded to the confederation of the Rhine, with the royal title. Large additions were made to the Saxon territory, 1807 and 1809; but these acquisitions were merely temporary. In the war of 1813, Saxony was the scene of the great struggle between Napoleon and the northern powers. The battles of Lützen and Beautzen, Dresden and Leipsic (see the articles, and *Russian-German War*), stripped the king of Saxony of his newly acquired territories. The king himself was twenty months a prisoner of the allied powers, and his dominions were governed by Russian and Prussian authorities. The fate of Saxony was long a subject of discussion at the congress of Vienna. It was at first proposed to unite it with Prussia; and nothing but the jealousy of Austria seems to have saved it from this fate. Its partition was finally resolved upon, February, 1815, and the king was obliged to cede more than half of his kingdom to Prussia. This cession included the whole of Lower Lusatia, part of Upper Lusatia, the circle of Wittenberg, and parts of those of Meissen and Leipsic, the greater part of Merseburg, &c., 8160 square miles, with a population of 875,578. After the king's return to Dresden, he immediately turned his attention to a system of public credit, and to the establishment of scientific and other useful institutions. By the partition, Saxony lost all its salt works, and its finest grain districts and forests, with some valuable mining districts, but still retains the most populous manufacturing parts of the country, with the rich Freyberg mines. A prudent policy may heal the wounds she has received; but her independence is altogether precarious. See Pölitz's *History of the Kingdom of Saxony*, and Engelhardt's *Description of Saxony*, in German.

SAXONY, THE PRUSSIAN DUCHY OF; a province of the kingdom of Prussia, chiefly composed of the cessions made by the kingdom of Saxony to Prussia, at the congress of Vienna, in 1815, together with other territories north of Anhalt and west of the Elbe and Havel. It is divided into the three governments of Magdeburg, Merseburg and Erfurt, and comprised, in 1828, 9653 square miles, with 1,409,388 inhabitants. It is very productive.

SAXON SWITZERLAND; a name which has been improperly given, for about thirty years, to the eastern part of the circle of Meissen, in the kingdom of Saxony, on the Elbe. It is a group of mountains of sandstone, with valleys and rivers of the most picturesque character, extending from Liebethal to the Bohemian frontier, about twenty-four miles long, and equally wide. Some of the rocks are 1800 feet high. It is one of the most charming spots on earth, and, on account of its vicinity to Dresden, so much resorted to for its treasures of art, attracts many visitors in summer. (See Götzinger's, Hasse's and Lindau's description.) The name is improper, because the region does not resemble Switzerland, even in miniature; and such comparisons lower the object compared.

SAY, JEAN BAPTISTE, a distinguished political economist, was born at Lyons in 1767, and went to Paris at an early period of the revolution, occupying himself with literature. He was subsequently one of the establishers of the *Décade* (*Revue*) *Philosophique*, with which he was, however, connected but a short time. In 1799, he was a member of the tribunate, but being removed by Napoleon, declined subsequent offers of office from him, devoting himself entirely to his literary labours. His chief works are his *Traité d'Economie politique* (5th ed., 3 vols., 1826), translated into English by C. R. Prinsep, and his *Cours complet d'Economie politique pratique* (4 vols., 1829). (See *Political Economy.*) The third edition of his *Catéchisme d'Economie politique* appeared in 1826. One of his most ingenious works is *Le petit Volume contenant quelques Apercus des Hommes et de la Société* (1827). His statistical treatises, *De l'Angleterre et des Anglais* (1815), and *Des Canaux de Navigation dans l'Etat actuel de la France*, are also esteemed. Say died in November, 1832.

SBIRRI. In Italy, particularly in the States of the Church, there were formerly certain police officers, with a military organization, who were called by this name. They were abolished in 1809.

SCABIOUS (*scabiosa*); an extensive genus of plants, belonging chiefly to Europe and the countries about the Mediterranean. The stems are herbaceous, and the flowers are united in heads at the extremities of the stems and branches, and resemble compound flowers. *S. succisa* is remarkable for having the root suddenly truncated, and as if bitten off; whence the name of *devil's bit* is applied to it.

SCÆVOLA. See *Mucius*.

SCAGGERAC (i. e. *Scagen's reef*); a sand-bank, which extends from cape Skagen, on the northern part of Denmark, a great way into the sea, on which account a large coal fire is constantly kept up there in the winter nights, as a mark for ships to avoid it. For this purpose, in the year 1752, a new tower, sixty-four feet high, was erected opposite to this sand-bank, on the spot where the former lighthouse stood, which had been demolished by the violence of the sea. The Scaggerac sea forms the communication between the German ocean and the Cattegat. See *Baltic Sea*.

SCAGLIOLA; a mixture of fine gypsum and powdered selenite (*pietra specolare*), made into a paste with glue, and serving to form paintings of a stony hardness. The process is as follows:—Upon a tablet of white stucco (consisting of this gypsum paste), the outlines of the work designed are traced with a sharp instrument, and the cavities thus made are filled up with successive layers of paste, of the same composition, but coloured. The application of the different layers is continued until all the varieties and shades of colour required are produced, and the surface of the whole is then polished. Scagliola work has the advantage over mosaic of being susceptible of the greatest possible variety of colouring, and, from the sameness of its material, of forming a more compact mass, so that the painting can receive a higher polish; by which means the colours are better preserved. The invention of this process is ascribed to Guido del Conte, or Fassi (1584—1649), an ingenious mason of Cari, near Correggio, in Lombardy. But we have some ancient specimens (as the Ilian tables) in white stucco; and inscriptions of the middle ages show that the art was never lost. In Bologna, such works continued to be made from ancient times, with glue prepared from parchment, like that of the ancients. Guido's scagliola is a complete imitation of marble. Annibal Griffoni, his pupil, imitated small pictures, engravings, and oil paintings, in scagliola. Giovanni Gravignani, who represented the rarest sorts of marble intersected with figures, carried the art still further. The true object of these works, however, is the imitation of marble. There are some fine specimens of scagliola in the gallery at Florence, by Paolini.

SCALDS, or SKALDS, like the rhapsodists of ancient Greece and the bards of the Celtic tribes, were at once the poets and historians of the Scandinavian race, the Icelanders, Danes, Norwegians. They sang the praises of the gods, and celebrated the exploits of the national heroes. (See *Northern Mythology*, *Edda*, *Saggas*, and *Scandinavian Literature*.) The scalds were the companions and chroniclers of the chiefs, whom they accompanied to battle, and at whose court they resided in time of peace. A sacred character was attached to them, and they performed the office of ambassadors between hostile tribes. They were often richly rewarded for their songs, and even married the daughters of princes. A regular succession of the order was perpetuated, and a list of 230 of the most distinguished in the three northern kingdoms, from the reign of Ragner Lodbrok to that of Valdemar II., is still preserved in the Icelandic language, among whom are several crowned heads and distinguished warriors of the heroic age. See Wheaton's *History of the Northmen.*

SCALE; a mathematical instrument, containing several lines, drawn on wood, brass, silver, &c., and variously divided, according to the purposes it is intended to serve; whence it receives various denominations, as the plain scale, diagonal scale, plotting scale, Gunter's scale, &c.

SCALE (from the Latin *scala*); the name given at first to the arrangement made by Guido of the six syllables, ut, re, mi, fa, sol, la; also called *gamut*. The word *scale* is likewise used to signify a series of sounds, rising or falling from any given pitch or tone, to the greatest practicable distance, through such intermediate degrees as are determined by the laws of music. See *Tone.*

SCALIGER, Julius Cæsar. The history of this celebrated scholar is involved in some obscurity, through his vanity. According to his own story, he was descended from the celebrated house of the Scaligers (Scalas), princes of Verona, and was born at the castle of Riva, on lake Garda, became a page of the emperor Maximilian, whom he served in war and peace for seventeen years, then received a pension from the duke of Ferrara, studied at Bologna, commanded a squadron under the French viceroy, applied himself to the study of natural law, and in 1525, accompanied the bishop of Agen to his diocese in France, where he settled. This account found credit with some learned men, among whom was De Thou, the friend and admirer of his son Joseph; but others, even in his own day, as, for instance, Scioppius, ridiculed it, and treated it as wholly or mainly fabulous. According to Tiraboschi, Scaliger was the son of Benedetto Bordone, a Paduan, who carried on the trade of a miniature painter in Venice, and received the name *della Scala* either from the sign or the situation of his shop. Scaliger resided in Venice or Padua till his forty-second year, occupied with study and the practice of medicine, and published some works under the name of Giulio Bordone. Either some promise, or the hope of bettering his condition, induced him to remove to Agen, where he passed the rest of his days. In 1528, he appears not to have formed any such design of giving himself out as a descendant of that princely family, for he was then styled, in his act of naturalization, *Julius Cæsar della Scala di Bordone*, doctor of medicine, of Verona in Italy. He must, however, have appeared with some distinction in Agen, as in 1530, he married a young lady of a rich and noble family there. It was from this period that he began to assert his princely descent, without furnishing any proof of the truth of his pretensions. But his name acquired celebrity by his writings, which gave him a high rank among the scholars of his age, although his arrogance made many enemies. The boldness and freedom of some of his works rendered his faith suspected; but he died a good Catholic, Oct. 21, 1558, in the seventy-sixth year of his age. Scaliger was certainly a man of uncommon abilities; and although he was one of the late-learned, yet few men have surpassed him in erudition. He had a powerful memory, and an active mind; he thought boldly, if not always logically. Of his physical works we may mention his *Exercitationum exotericarum Liber quintus decimus de Subtilitate ad Cardanum* (Paris, 1557), Commentaries on the Work of Hippocrates *De Insomniis* (1538), and a work upon the treatises of Theophrastus and Aristotle on Plants, and of the latter on Animals, with a translation. As a philologist he wrote two discourses against the *Ciceronianus* of Erasmus, an excellent work on the Latin language, *De Causis Linguæ Latinæ Libri xviii.* (Lyons, 1540; Geneva, 1580), the first philosophical treatise on this subject. His work *De Arte poetica Libri vii.* (Lyons, 1561 and 1581) gained him much reputation, but displays more grammatical learning than poetical imagination or critical spirit. Modern critics do not accord him the same praise which Lipsius, Casaubon, Vossius, &c., bestowed on him.

SCALIGER, Joseph Justus, son of the preceding, was born at Agen in 1540. In the eleventh year of his age he was sent to Bordeaux, where he studied the Latin language for several years. The plague obliged him to return to his father, who required him to compose a Latin discourse daily, by which means he soon became thoroughly acquainted with that language. After the death of his father, he went, at the age of nineteen, to Paris, where he devoted himself to the study of Greek. Shutting himself up in his chamber, he read Homer and the other Greek poets and prose writers with such industry, that in the course of two years he had read them all. He next studied Hebrew and other Oriental languages, and exercised himself in poetical compositions in the classical languages, having already, in his sixteenth year, written a tragedy in Latin. He then for some time led an unsettled life, of which we have no particular account. His conversion to Protestantism doubtless prevented his advancement in France; but, in 1593, he was made professor of polite literature at Leyden, where he died in 1609. He had the character of a scholar, absorbed entirely in his books, and paying little attention to the common affairs of life, so that he never was rich; yet he refused several presents of money, sent him by distinguished men, out of respect to his talents and learning. He was never married. In regard to pride and arrogance, he was little inferior to his father, whose tales respecting the origin of his family he endeavoured to confirm. He was also remarkable for his asperity and contemptuous tone towards his adversaries. He boasted that he knew thirteen languages; and he was so entirely immersed in his studies, that he would pass whole days in his chamber without eating. Of his numerous works, the treatise *De Emendatione Temporum* (Paris, 1583; Geneva, 1609) is one of the most important. In this learned work, he gave the first complete and scientific chronological system, and for these labours, and his discovery of the Julian period, deserves to be called the founder of this science. Many errors which were exposed by Petavius and others, he corrected in the *Thesaurus Temporum, complectens Eusebii Pamphili Chronicon* (Amsterdam, 1658). His annotations to Theocritus, Nonnus, Catullus, Tibullus, Propertius, Seneca (tragedies), Varro, Ausonius, Festus, are characterised by an excessive subtilty, and too great freedom in regard to the text of the authors. His *Poemata* have little poetical merit; his *Epistolæ* are more valuable. On the whole, Joseph Scaliger had less genius than his father, but more learning and accuracy.

SCALPING; a barbarous custom, among Indian warriors, of taking off their enemies' scalps with the hair on. These are preserved as trophies of victory.

SCAMANDER; a small stream in Asia Minor, which has acquired celebrity from the songs of Homer, according to whom it was called by the gods, *Xanthus*. It runs through the plains of Troy, and receives the Simois, another small stream mentioned by Homer. The Homeric account, that one of its sources was warm and the other cold, has been confirmed by modern travellers.

SCAMMONY is the inspissated juice of the root of a species of *convolvulus* (*C. scammonia*), which grows wild in Syria, and other parts of the Levant. This juice is obtained, in the latter part of the spring, by making incisions in the upper part of the root, and placing shells or cups to receive the milky fluid which exudes; twice a day the portion furnished by each root is collected and dried in the sun. The purest scammony is procured in this manner, but such is rarely exported. The scammony of commerce is merely the expressed juice of the entire roots, sometimes even mixed with that of the stems and leaves, and evaporated to the consistence of a solid extract. It is of two kinds—the Aleppo, which is the best, and the Smyrna, which is inferior; both collected respectively in the vicinity of those two cities. Scammony has been known from a very ancient period; it is mentioned by Hippocrates, and many peculiar virtues were attributed to it at that time; now it is considered only as an active purgative, and as such is still much in use. The dose varies from two to twelve grains, according to age, sex, or temperament. The root of the plant is thick, fleshy and tapering, three or four feet in length, by three or four inches in diameter; it gives out one or several slender climbing stems, provided with triangular, arrow-shaped leaves; the flowers are large, white, or slightly purplish, disposed, two or three together, upon a common axillary peduncle. Jalap is also the root of a species of *convolvulus*. See *Jalap*.

SCANDALUM MAGNATUM, in English law, denotes a wrong done to high personages of the land, as prelates, dukes, marquisses, earls, barons, and other nobles; and also the chancellor, treasurer, clerk of the privy seal, steward of the house, justice of one bench or other, and other great officers of the realm, by false news, or false messages, whereby debates and discord between them and the commons, or any scandal to their persons, might arise. For slanders of this kind, though such as would not be actionable in the case of common persons, redress is provided by many old statutes.

SCANDERBEG (i. e. *Alexander Bey*), prince of Albania, whose proper name was George Castriotto, son of John, prince of that country, was born in 1404. Being given by his father as a hostage to sultan Amurath II., he was educated in the Mohammedan religion, and at the age of eighteen, was placed at the head of a body of troops, with the title of *sangiac*. After the death of his father, in 1432, he formed the design of possessing himself of his principality; and, having accompanied the Turkish army to Hungary, entered into an agreement with Hunniades to desert to the Christians. This design he put into execution; and having ascended the throne of his fathers, he renounced the Mohammedan religion. A long warfare followed; but, although frequently obliged to retire to the fastnesses of mountains, he always renewed his assaults upon the first favourable occasion, until the sultan proposed terms of peace to him, which were accepted. The Venetians having entered into a war with Mohammed II., induced Scanderbeg to renounce his treaty with the sultan. He obtained repeated victories over the Turkish generals, and saved his own capital, although invested by an army commanded by Mohammed himself. He was at length carried off by sickness, at Lissa, in the Venetian territories, in 1467, in his sixty-third year. His death was soon followed by the submission of Albania to the Turkish dominion. When the Turks took Lissa, they dug up his bones, of which they formed amulets, to transfer his courage to themselves.

SCANDINAVIA; the ancient name of the region now comprehending the three northern kingdoms, Denmark, Sweden, and Norway. The inhabitants were known to the ancient nations of the south of Europe only by vague rumour. Tacitus mentions the Suiones (Swedes) as a naval people. Pliny notices a peninsula called *Nerigon* (Norway, in Swedish, *Norige*, Danish, *Norge*). Many suppose Iceland to be the *Thule* of the classic writers. The name *Danus* is first found in Gregory of Tours, in the sixth century of the Christian era. Sweden, Norway, Denmark, and Jutland were inhabited, in the earliest times, by people of the Teutonic stock, and nomads of Finish descent. According to Rask, Magnussen, Münter, and others, the Scandinavians and the people of south Germany have a common origin with the Indian, Persian, and Pelasgian tribes. B. C. 100, the natives of Jutland and Sleswick became formidable to the Romans, under the name of *Cimbri*. About A. D. 250, commence the fabulous accounts of Odin, Othin, or Woden. Till the middle of the ninth century Scandinavia was little known; but the bold expeditions of the natives into the southern and western parts of Europe, and the diffusion of Christianity among them about the year 1000, shed light on this region. At this period the inhabitants of Scandinavia were divided into hordes, like the Tartars. In the ninth and tenth centuries, these tribes enjoyed a golden age of piracy. By the western historians, they were spoken of under the title of *Danes* and *Normans*; in the English annals of that period, under the name of *Easterlings*; the Russians called them *Varan-*

gians; and the Hispano-Arabic writers, *Mantchoos.* From Sweden, Norway, the Danish islands, from Jutland and Sleswick, the rude adventurers sailed to near and distant harbours, within and without the Baltic, to Novgorod, Kiev, and Plotzk, to England, Scotland, Ireland, Holland, Germany, France, Spain, and Italy; sometimes they only plundered and destroyed, and sometimes founded new states. See Wheaton's *History of the Northmen*, and the article *Normans.*

Scandinavian, or *Old Norse Literature*, includes the literature of the people of Norway, Sweden, and Iceland, before their conversion to Christianity. It goes back as far as the earliest history of the north, and comes down to the period when the last traces of heathenism disappeared. It is of great importance, both to Germany and England; for, as they were converted to Christianity much sooner than the Scandinavians, they retain no literary monuments of their heathen period. The old Norse literature has preserved to us not only the old versification peculiar to all nations of Teutonic origin, and distinct from that of all the other western nations, but also a mythology which, rude as it is, approaches, in the rich invention which it displays, to the mythology of Greece. Not only the poetry, and mythology, but likewise the history, the antiquities, of which the Runic monuments (see *Runes*) are the principal, and the existing collections of laws, afford rich materials for the knowledge of the pagan period of the northern countries. Julius Cæsar, Lucan, and Tacitus furnished some slight hints on the character of the Scandinavian mythology. In the eighth century, native authors appeared, who rescued the traditions of the past from oblivion. The Lombard, Paulus Diaconus, the first of these authors remaining (about the end of the eighth century), gives us, from the traditions of his own countrymen, a dialogue between the deities Woden and Frea (Odin and Freya). A war had broken out, as he relates, between the Winiles and Wandeles. The latter prayed to their god Woden for assistance and victory; Woden replied, that he would give the victory to the party which he should first see on the rising of the sun. But the leaders of the Winiles, Ibor and Ayo (Agio), who by Saxo are called Ebbo and Aggo, had an ingenious mother, named Gambara, who was related to the gods, and whose counsel was esteemed by all the people. She went to Odin's wife, Frea (Freya, or more properly Frigga), and solicited victory for her countrymen and subjects, the Winiles. Frigga advised that all the women of the Winiles should station themselves, at sunrise, with their husbands, opposite to the place whence Odin was accustomed to look to the east; and, in order that he might immediately notice them, she directed that they should draw their long hair over their faces, so as to make it resemble a thick beard. The advice was followed, and the bearded females immediately struck the eye of Woden, who suddenly exclaimed, "Who are those long-beards?" This was what Frigga expected; and, as it was an ancient custom that a person who gave a name to a child, a hero, or a nation, should give them a present, Frigga cried, "They are the Winiles; and, as you have given them another name, it is your duty to give them a present: therefore give them victory." It was agreed; and from that time, the Winiles were called *long-beards* (whence *Lombards*). That the name of the people is founded on their long beards is mentioned by early authors, as Isidorus Hispalensis, who died in the first half of the seventh century, as the general belief. Moreover, the days of the week must have been named in very early times, after the gods Tyr, Woden, Thor, and Freya; for in the time of Charlemagne, their names had became so well settled, that when he gave new names to the months, he did not venture to alter the names of the days of the week. Adam of Bremen (who died in 1076), in his book *De Situ Regnorum septentrionalium*, gives an account of the Swedes, when they were yet, in part, heathens, of the temple of the gods at Upsal, and of the gods Thor, Woden, and Frey (whom he calls *Fricco*). He shows how they are represented, but this is nearly all. Saxo Grammaticus, a Dane, was distinguished, in the second half of the twelfth century. His sixteen books of the *Historia Danica* are a remarkable phenomenon. Using the language of the Roman classics, and skilled alike in verse and prose, he takes a course peculiar to himself. The novelty of his subjects, the obscurity of his sources, the wonderful character of his stories, the charms of his style, produce a great effect. Sämund Frode (died 1133), Are Frode (died about 1148), and Snorre Sturleson (murdered in 1241), are also writers of much merit. Till the invention of the art of printing, little was known of the literature of Scandinavia in the rest of Europe. The first important light shed on it was by Arngrim Jonson's discovery of a parchment manuscript of the prose Edda, that is, of the younger Edda, composed by Snorre Sturleson. In September, 1628, Jonson sent to the celebrated physician Ole Worm (Olaus Wormius) this manuscript, now preserved in the library of the university at Copenhagen, with its appendix, the Scallda. Ten years later, another Icelander, Bryngulf Svenson, discovered a second parchment manuscript of the prose Edda, and also a parchment manuscript of the poetical Edda. (See *Edda.*) Both were placed in the royal library at Copenhagen. In the year 1665, Peter Resen, or Resenius, published specimens of the poetical Edda, and the whole prose Edda. The specimens of the poetical part are entitled *Ethica Othini pars Eddæ Sæmundi vocata Haavamaal, una cum ejusdem Appendice appellata Runa Capitule a multis exoptata, nunc tandem Islandice et Latine in lucem producta est per Petrum Joh. Resenium* (Copenhagen, 1665); 2. *Philosophia Antiquissima Norvego-Danica dicta Woluspa, quæ est pars Eddæ Sæmundi, Eddâ Snorronis non brevi antiquioris, Islandice et Latine publici Juris primum facta a Petro Joh. Resenio* (Copenhagen, A. D. 1665, 4 sheets, 4to), with the variations in the text from the royal and Nolde copy, and a Latin translation, by Stephen Olai, an Icelander. The prose Edda bears the following title: *Edda Islandorum anno Chr. MCCXV. Islandice conscripta per Snorronem Sturlæ, Islandiæ Nomophylacem, nunc primum Islandice, Danice et Latine ex antiquis codicibus MSS. Bibliothecæ Regis et aliorum in Lucem prodit opera et studio Petri Johannis Resenii,* etc. (Copenhagen, 1665). The text is founded chiefly on the manuscript of Stephen Stephanius, who died 1650, collated with other copies. The various readings are drawn from the royal copy and that of Worm. The Latin version is by Magnus Olai (1629), with extracts from a later and more accurate translation, by Stephen Olai, of 1646. Neither of the Latin translations, however, extends further than to the 68th *Dämisaga.* But a Latin translation from the 69th to the 78th and last *Dămisaga* (ten fables, which comprehend the German tales of the Nibelungen), was prepared afterwards by Thormod Torfäus (born 1636, died at Copenhagen 1719). In the sixty-eight *Dămisagas* is unfolded the entire mythology of the north. The story of the characters and achievements of the gods is introduced by a fiction, relating how Gylfs, the king of Sweden, undertook a journey to the Asers (gods), to learn from their own mouths their nature and laws. He received from the eldest of the gods an account of the beginning of the world, the primitive giant Ymir, and the sons of Bör, the origin of men, the giant Niorwi, the creation of the sun and moon, the celestial bridge of Bifröst, the building of the city of the gods, the dwarfs, the holy places of the gods, and the ash-tree of Ygdrasil, the dwellings of the gods, the origin of the wind, of summer and winter, and finally of all the Asers, and their mysterious history. But this is only the first part of this Edda. The other (*Annar partur Eddu*) treats of the names of the gods, and of all the synonyms and circumlocutions admissible in poetry, in alphabetical order, a genuine northern *Gradus ad Parnassum*. It has since appeared that there is still a third part of this Edda, containing the rules for one hundred different kinds of verse, and entitled *Háttatal, Clavis metrica*. Unfortunately (at least this was the story about thirty years ago), nearly the whole edition of the work of Resen was burnt; only six copies were saved, and the library of the university of Gottingen procured one of them for 100 ducats. But, whether this account is true or not, the Edda of Resen is a great literary curiosity. Notwithstanding these rich materials, to which Thomas Bartholin made extensive additions of old Norse songs, in his work *Antiquitatum Danicarum Libri tres* (Copenhagen, 1689), a century elapsed before this new and wild mythology produced any considerable excitement in Scandinavia and Germany. Before the time of Resen, the lovers of northern antiquities had received from Ole Worm his Runic Monuments, in six books (1643); from Stephen Stephanius, a new edition, and full commentary on Saxo Grammaticus (1644); from Olaus Verelius, the *Hervararsaga* (1672), and the *Runographia Scandica* (1675). Scheffer's *Upsalia Antiqua* (in 1666, about the time of Resen) afforded interesting views of the doctrines and worship of the north, and Rudbeck, in his *Atlantica* (1689), excited surprise for a time. Göranson, a Swede, commenced, in 1746, a new edition of the prose Edda, and, in 1750, of the *Völuspaa*. About the same time, Gottfried Schütze, a patriotic German, wrote Apologies for the ancient Tribes of Germany and the North. The result of Gräter's researches into the manuscripts containing remains of old northern literature in the library of the university at Halle, was a collection called *Northern Flowers* (Leipsic, 1789, by Gräff). His *Bragur* stimulated the learned, particularly of Germany and Denmark, to further investigations. A new spur was given to the study of Scandinavian literature by a *rifacimento* of the *Nibelungenlied*, by Hagen, in 1807, presenting the same matter in a German and Christian form, which the long expected second part of the poetic Edda was to have given in a northern and heathen form; and the appearance, at length, of an Icelandic grammar and a dictionary by Rask. The principal subsequent publications on this subject are the commentary on the collective songs of the Edda—*Den ældre Edda* (1821—23, 4 vols.), by Finn Magnusen, the comprehensive examination of all the historical and poetical traditions of the north, by Erasmus Müller, in his *Sagabibliothek* (1817—20, 3 vols.), and his work On the Rise and Decay of Icelandic Historiography, with an Appendix on the Nationality of the old Norse Poems, translated by Sander (Copenhagen, 1815). The investigation of the Runes (q. v.) have also been of much interest. The old northern sagas, or heroic tales, which were translated into Danish, and published from the Icelandic manuscripts, by C. Chr. Rafn, secretary of the society of Scandinavian literature (Copenhagen, 1821—24, 3 vols.) are of four sorts—mythic, mythico-historical, historical, and romantic. These traditions are mostly of Icelandic origin. They were composed by monks, and written on calfskin, before the sixteenth century. The learned Icelander, Arne Magnusen (died 1730) collected 1554 of these manuscripts, and left by his will a large sum for their publication. This fund led professor Rafn, in connexion with doctor Brynjulfon (who died in 1827), Egilson, and Gudmunsson, of Iceland, to found a society for the publication of old Norse manuscripts, which now includes 145 members. (Professor Rask is the president.) Of the amended text of the *Sagas* there have appeared three editions; one in Icelandic, one in Danish, and one in Latin: the title of the last is, *Scripta historica Islandorum de Rebus Gestis veterum Borealium*. Of this edition, three volumes had appeared in 1827, which contain the *saga* of the Norwegian king Olaf Trygveson, and other short *sagas*. See *Northern Mythology;* also the work of Wheaton, referred to above, and an article on Icelandic Literature, in the 17th number of the Foreign Quarterly Review.

SCANIA. See *Schonen*.

SCANNING in poetry; the measuring of a verse by feet, in order to see whether the quantities be duly observed. The term is chiefly used in regard to Greek and Latin verses. Thus a hexameter verse is scanned by resolving it into six feet; a pentameter, by resolving it into five feet, &c.

SCAPE GOAT, in Jewish antiquities; the goat which was set at liberty on the day of solemn expiation, typically to bear away the sins of the people.

SCAPEMENT. See *Watch and Clock making*.

SCAPOLITE. A mineral which has presented itself under a great variety of aspects, and has hence been mistaken as affording, in its varieties, the foundation of several new species; instances of which are the following: *Meionite, Dipyre, Bergmanite, Wernerite, Gabbronite, Ekebergite*, and *Nuttallite*, all of which are now recognised as coalescing with scapolite. It is often seen in well defined cystals, which are right, square prisms, terminated at one or both extremities by four-sided pyramids. The length of the prism is about double its diameter. It is sometimes truncated on its lateral edges, and thus converted into an octagonal prism; cleavage not very distinct; fracture imperfect, conchoidal, uneven; surface of the prism sometimes longitudinally streaked; lustre vitreous, inclining to resinous upon the cleavage; colour various shades of white, gray, and green; occasionally, also, red or purple; transparent, translucent, and opaque; brittle; hardness between apatite and feldspar; specific gravity, 2·6—2·8. The massive varieties are columnar, granular, and compact. As respects some of the varieties which gave origin to the names above mentioned,—Meionite contains the purest and most transparent varieties of the species of a white colour; Dipyre occurs in minute crystals, whose form is scarcely discernible, and imbedded in a steatitic rock; Bergmanite is massive, fine-grained, of a grayish, greenish, or reddish white colour; Wernerite is in crystals doubly terminated, of a greenish-gray colour; from which Nuttallite scarcely differs, except that the crystals have a tinge of blue, and are slightly chatoyant. The following results, relative to the chemical composition of scapolite, were obtained, 1. by Stromeyer, from a variety of Meionite from Monte Somma; and, 2. by Nordenskiod, from the scapolite of Finland:—

Silex,	(1.) 40·531	(2.) 43·83
Alumine,	32·726	35·43
Lime,	24·245	18·96
Potash, and a little soda,	1·812	0·00
Protox. iron,	0·182	0·00
Water,	0·000	1·03

In a strong heat, before the blow-pipe, scapolite melts into a vesicular glass, and intumesces considerably; then it assumes the appearance of ice, and does not melt any longer. It is dissolved by borax, with effervescence. Meionite is met with among the minerals ejected by mount Vesuvius. The other varieties of the species are met with in primitive mountains, in beds of iron ore or limestone, and are generally accompanied by augite and hornblende.

SCAPULA, JOHN, the author of a valuable lexicon of the Greek language, published originally in quarto, in 1583, which has since gone through a variety of editions, particularly an excellent one from the Elzevir press, and those by A. & J. Duncan (Glasgow, 1816, 2 vols. 4to.) and Major (London, 1820, 4to.). Henry Stephens (q. v.), while completing his *Thesaurus*, having employed Scapula to correct the press, the latter secretly abridged the work. The dictionary, thus treacherously stolen, ruined the sale of that of his employer.

SCAPULARY (*scapularium*); part of a monk's dress, consisting of two pieces of cloth, of which one covers the breast, the other the back. With lay-brothers, the scapulary only reaches to the knee; with the other religious, to the feet.

SCARABEUS; the beetle (q. v.), which was held in great veneration by the Egyptians. The most celebrated, and that which is alone to be found represented on ancient monuments, is the *scarabeus sacer* of naturalists. This is seen on the Isiac table, and is frequent among hieroglyphics: it passed as the symbol of immortality, and as the emblem of the sun. Another species was consecrated to Isis, and indicated the moon; its two horns resembling the crescent of that planet. According to Caylus, the Egyptians gave the shape of the scarabeus to their amulets or rings. See *Hieroglyphics*.

SCARAMOUCH (Ital. *scaramuccia*); one of the grotesque characters of the Italian stage, which, about 1680, took the place of the old Spanish captain, was dressed entirely in black, a colour commonly worn in Naples by courtiers and magistrates. He represented the swaggerer, who is finally flogged by harlequin. The original scaramouch was a person named Tiberius Fiorelli, a native of Naples, who distinguished himself on the stage by his jests and his skill in mimicry. In France, the scaramouch was used for a greater variety of parts.

SCARBOROUGH; a market and seaport town of England, in the North Riding of Yorkshire, forty miles north-east of York, and 217 north of London. It is a place of considerable trade, and much frequented for its mineral waters, warm baths and sea-bathing. It stands in the recess of a beautiful bay, on the borders of the German ocean, and rising from the shore in the form of an amphitheatre. The town is well built; the principal streets spacious and well paved. The buildings on the cliff are striking, having in front a terrace nearly 100 feet above the level of the sands. An iron bridge of four arches, seventy-one feet span each, supported by stone pillars nearly seventy feet high, connects the terrace with a beautiful promenade, 350 yards in length, leading to the Spa, and in full view of the sea, harbour, town and castle. The plantations and public walks are agreeable; and an elegant assembly-room and a handsome theatre are open in summer evenings. The rides are also varied and romantic. Scarborough has two Episcopal churches, an Independent, Baptist, and Roman Catholic chapel, a meeting-house for Quakers, and two for Methodists. The ruins of the ancient castle form a very picturesque object, and great ornament to the town. The promontory on which they stand rises nearly 300 feet above the level of the sea. The area of the castle contains about nineteen acres. It was built about the year 1136, and became the scene of many important transactions in English history. The harbour of Scarborough is commodious, and of easy access, and has been improved by extensive works. The present prosperity of Scarborough is chiefly owing to its mineral waters, which have rendered the town a place of fashionable resort for health and pleasure. There are two wells, saline aperient, and chalybeate. Population in 1841, 10,060.

SCARFING; a particular method of uniting two pieces of timber together by the extremities, the end of one being tapered so as to be set into the other, as in the keel-pieces. But when the ends of the two pieces are cut square and put together, they are said to *butt* to one another; and when another piece is laid on and fastened to both, as is the case in all the frame timbers, this is called *scarfing* the timbers; and half the piece which fastens the two timbers together is reckoned the length of the scarf.

SCARIFICATION, in surgery; the operation of making little cuts or punctures in the skin by means of lancets or other instruments, particularly the cupping instrument.

SCARLATTI, ALESSANDRO, chapel-master at the Neapolitan court, born at Naples, 1658, was educated at Rome under Carissimi, and, after residing some time in Germany and at Rome, passed the last years of his life at Naples, where he died, in 1728. The Italians called him the pride of art and the first of composers. Hasse says, that he was the greatest master of harmony among the Italians, and Jomelli considered his church music as the best of its kind. He composed a great number of motets, and about 200 masses. His opera *La Principessa fidele* is esteemed his masterpiece.

SCARLET FEVER (*scarlatina*), a contagious fever, characterized by a scarlet coloured eruption on the skin, in patches, which, after three or four days, fall off in scales. Some have asserted that *scarlatina* never attacks the same person a second time; more extensive observation has confuted this opinion. It seizes persons of all ages; but children and young persons are most subject to it; and it appears at all seasons of the year, but is more frequently met with towards the end of autumn or beginning of winter, at which time it very often becomes a prevalent epidemic. *Scarlatina*, in its inflammatory form, is not usually attended with danger, although a considerable degree of delirium sometimes prevails for a day or two; but when it partakes much of the malignant character (*scarlatina anginosa*), or degenerates into *typhus putrida*, which it is apt to do, it often proves fatal.

SCARP, in fortification; the interior slope of the ditch with which the fortification is surrounded, and which faces the country or champaign.

SCARPA, Antonio, one of the most celebrated anatomists and surgeons of the eighteenth century, was born in Lombardy, in 1746. His work *Anatomicæ Disquisitiones de Auditu et Olfactu* appeared at Pavia in 1789; previously to which his *Anatomicæ Observationes de Structura Fenestræ rotundæ Auris* (Modena, 1772) had already attracted the notice of the learned. At the time of the revolution in Italy, he was deprived of his professorship in the university on account of his refusing to take the oath required by the Cisalpine republic. He now published his celebrated work On Aneurisms (1804). When Napoleon, after his coronation at Milan, as king of Italy, arrived at Pavia (1805), and received the officers of the university, he inquired after Scarpa. He was informed that he had long ceased to be a member of the university, and was told the reason. "What," said Napoleon, "have political opinions to do here? Scarpa is an honour to Pavia and to any dominions. Let him be honourably restored." Scarpa was the author of several other surgical works, besides those already mentioned. He died in Pavia on the 31st October, 1832. Most of his works have been translated into English and French.

SCARRON, Paul, a comic poet and satirist, was born at Paris, in 1610. His father, a counsellor of the parliament, wished to oblige him to take orders; but the son was averse to such a step. At the age of twenty-four, he travelled into Italy, where he gave himself up, without restraint, to indulgence of every kind, and continued his excesses, after his return to Paris, in such a manner as to bring upon himself the most painful diseases. At the age of twenty-seven, having appeared during the carnival at Mans as a savage, he was pursued by the populace, and threw himself into a marsh. In consequence of this exposure, he lost the use of his limbs. Notwithstanding his sufferings, he never lost his gayety; and, settling at Paris, his wit and social powers gained him the friendship of some of the most distinguished persons in the city and at court. After the death of his father, he had a lawsuit with his mother-in-law, in which although his whole fortune was at stake, he made a humorous defence of his claims, and lost his case. Mad. de Hautefort, his friend, touched by his misfortunes, presented him to the queen. Scarron requested permission to call himself her majesty's valetudinarian. The queen smiled; and Scarron, taking her smile as a commission, styled himself thenceforth *Scarron, par la grace de Dieu, malade indigne de la reine*. He now obtained a pension by his praises of Mazarin, whom, however, he soon after offended by his *Mazarinade* and his *Typhon*, and thus lost his pension. His marriage with Francoise d'Aubigné, afterwards wife of Louis XIV., and marchioness de Maintenon (q. v.), however much it may have increased his happiness, did not improve his fortune; and he lived with so little economy, that he soon became involved in pecuniary difficulties. The comedies, which he wrote as a means of subsistence, were borrowed from the Spanish theatre. His *Jodelet ou le Maitre Valet* had great success. His *Enéide travestie*, and his *Roman comique*, particularly the latter, are among the most esteemed of his works. His works appeared at Paris (1737, 10 vols.)

SCAURUS, Marcus Æmilius. There were two distinguished Romans of this name, father and son. The former was chosen consul B. C. 116, and was afterwards *princeps senatus*. He was likewise celebrated as an orator, and assumed a severity and dignity of manner which gained him great consideration, both with the senate and people, artfully cloaking his ambition and rapacity. He also celebrated a triumph, on account of his victory over the Gauls. Although he allowed himself to be bribed in the war with Jugurtha, he conducted himself with such caution and cunning as to secure his reelection to the consulate, and his election to the censorship.—His son was remarkable for the brilliant display which he made as *ædilis curulis*. He built a large and splendid theatre, and exhibited public games at great expense. Cicero defended him, when he was accused of being guilty of oppressions in the province of Sardinia.

SCENERY; the decorations of a stage, by means of which the different places in which the action of the drama is supposed to go on, are represented. In the theatres of the ancients, the scenes were not changed during the performance; the sidewalls remained unaltered, and were decorated quite simply; perhaps, only painted with some not very bright colour, adapted to any representation and every change of scene. When theatres were established in Europe, in the sixteenth century, these side-walls were not at first provided with movable scenery. When the mysteries were represented on the stage, the actors sat on particular seats along the sides. As soon as the piece commenced, the spectators saw at once all the performers. When an actor was to make his appearance in the piece, he rose from his seat, and took it again at his exit. In later times, there was a space on the side of the stage, in which some spectators were admitted, particularly the critics and wits of the day. They had servants to wait on them, who brought them pipes and tobacco; for they smoked there as well as in other parts of the house. The representation of a tragedy was indicated by black hangings round the stage, and the changes of the scene merely by inscriptions, with the names of the places represented. It was left to the imagination of the spectators to supply the local circumstances. The Italian architect Serlio (died 1540) first placed on the sides of the stage movable scenes, so as to leave intervals between them, affording a free passage. In this way, the stage could be better lighted; for hitherto two chandeliers, suspended above the stage, had been used for this purpose; but the new arrangement permitted the use of lights which were not seen by the spectators, and, besides, the brilliancy of the light could be increased or diminished, according to circumstances. In England, this mode of lighting was first introduced after Garrick's return from France. But a more important advantage of the movable sides was, that they could be varied as occasion required, so as to bring the place and circumstances of the action represented before the eye.

SCEPTICISM (from σκεπτεσθαι, to look at distant objects with the hand held above the eyes, and secondly, to survey, consider). The Greek philosophers, called *sceptics*, were also called *Pyrrhonists*, from Pyrrho of Elis; also *Aporetici*, i. e. doubters; *Ephectici*, that is, abstaining (from judging). Pyrrho (born 384 A. D.) was a man whose aim, according to Diogenes Laertius, was uprightness of life, unconcerned about philosophical speculation, which, as then pursued, was not favourable to integrity. He wrote nothing himself; but some information respecting him is contained in the extant fragments of the writings of Timon of Phlius in Achaia. He is represented as truly virtuous, hostile to all pride of opinion, and not esteeming mankind very highly. In fact, his scepticism was essentially different from that of a later period.

Ten topics of argument were used in the school of the sceptics, with this reservation, that nothing could be positively asserted concerning either the number or force of the arguments which may be urged in favour of uncertainty. 1. That on account of the variety which takes place in the organization of different animal bodies, it is probable that the same external objects present different images to different animals, and man can have no reason for asserting that his perceptions are more conformable to the real nature of things than those of inferior animals. 2. That even among men, there is a great diversity both of mind and body, which necessarily occasions a great variety of opinions: every man judging according to his particular apprehension, whilst no one is able to determine the real nature of things. 3. That the different senses give different reports of the same thing; whence bodies may have different properties from those which the senses lead us to suppose. 4. That the same thing appears differently, according to the different dispositions or circumstances of the person who perceives it; whence it is impossible for any one man to pronounce that his judgment concerning any object is agreeable to nature. 5. That things assume a different aspect, according to their distance, position, or place; and no reason can be assigned why one of these aspects should agree with the real object, rather than the rest. 6. That no object offers itself to the senses, which is not so connected and mixed with others, that it cannot be distinctly separated and examined. 7. That objects of sense appear exceedingly different, when viewed in a compound and in a decomposed state; and it is impossible to say, which appearance most truly expresses their real nature. 8. That every object being always viewed in its relation to others, it is impossible to determine what it is simply in its own nature. 9. That our judgment is liable to uncertainty, from the circumstance of frequent or rare occurrence; that which happens every day appearing to us in a very different light from that in which the same thing would appear if it were new. 10. That mankind are continually led into different conceptions concerning the same thing through the influence of custom, law, fabulous tales and established opinions. On all these accounts, every human judgment is liable to uncertainty; and we can only say, concerning any thing, that it seems to be, not that it is what it seems.

Besides these topics, the later sceptics made use of some others. They maintained that every proposition requires some prior proposition to support it *in infinitum*, or supposes some axiom which cannot be proved, and is therefore taken for granted without demonstration, that is, may be denied; that, in argument, the point assumed, and that which is to be proved, may often be alternately used in each other's place, both being equally uncertain: and, lastly, that nothing can be understood by itself, as appears from the endless disputes of philosophers concerning the nature of things; nor by means of something else, whilst itself remains unknown. An avoidance of all settled opinion on subjects of knowledge (ἐποχη), and a consequent tranquillity (ἀταραξια) amid all the changes of life, were the beginning and end of this system.

Sextus Empiricus, towards the end of the second century, carried out the system of scepticism with rare erudition and acuteness, and separated the reasoning of the sceptics from the negative dogmatism of the later academy (see *Plato*); and to him we are indebted for our knowledge of scientific scepticism in its maturity. Of modern sceptics, we may mention Francis Sanchez (born 1562, at Bracara, in Portugal, died 1632); Francis de la Mothe le Vayer (born 1586, died 1672; Sorbiere and Foucher were his disciples; he declared his belief in revealed knowledge); Peter Daniel Huet (born 1630, died 1721); Jos. Glanvill (died 1680); and Peter Bayle (born 1647), a man of great acuteness, and the celebrated Hume (born 1711). (See *Hume.*) A limited scepticism was recently taught by G. E. Schulze, of which the chief maxim is, that the origin of our knowledge is inexplicable.—See *History and Spirit of Scepticism*, &c., by Stäudlin (Leipsic, 1794—95, 2 vols.). It is highly necessary to distinguish between that puerile doubting which disqualifies for forming a decided opinion in individual cases, and that scepticism which, in science, is opposed to dogmatism, and is indispensable to keep the mind within due bounds in its eternal striving for a solution of the great riddle of existence, and for a correct understanding of intellect, reality, and the power which pervades and upholds all existence.

SCEPTRE (from *sceptrum*, σκῆπτρον,), originally a staff, the emblem of sovereign power. Some say that it was only a lance, without the metal point, to indicate the continuance of supreme power in time of peace; but in some cases it may have originated from the simple staff—with many tribes the emblem of old age and wisdom. The *baton*, the short sceptre, has always remained a sign of distinction; as in the case of the marshals. In the Greek assemblies, a person who wished to speak received a sceptre from the herald; and the judges also bore it while in the exercise of their authority. Kings swore by the sceptre. By degrees it became the emblem of power alone. Through the Roman emperors it passed to the Western monarchs. The sceptre and ball now form the two most important emblems of royal and imperial power.

SCHAFFHAUSEN; one of the smallest of the twenty-two cantons of Switzerland, in the northern part of which it lies, on the right bank of the Rhine, nearly surrounded by Baden, and separated by the Rhine from the cantons of Zürich and Thurgau, on the south. Its superficial extent is 115 square miles; population, 28,050, in seven towns and thirty five villages, all reformed (Calvinists), except 210 Catholics. (See *Switzerland.*) The capital, of the same name, on the right bank of the Rhine, has a population of 7000 souls. Lon. 8° 37′ E.; lat. 47° 43′ N. It has a castle, a college *(collegium humanitatis)*, with nine professors, a gymnasium, a town library, theological library, town hall, &c., and manufactures of cotton, silk and leather. It is situated about a league above the celebrated cataract of the Rhine, of which the descent is seventy or eighty feet. (See *Rhine* and *Cataract.*) The situation of the town gives it a considerable transit trade, all goods brought down the river being landed here. There is a wooden bridge here over the Rhine, 120 paces long; but the ingenious hanging bridge, which was built in 1758, was destroyed by the French in 1799.

SCHANDAU; a small town in the centre of Saxon Switzerland, two leagues from the Bohemian frontier, with 1000 inhabitants. It is much visited in summer, on account of its charming situation, the beautiful scenery in its neighbourhood, and its mineral waters.

SCHARNHORST, Gebhard David von; born in 1756, at Hämelsee, in Hanover. His father, in consequence of being embroiled in a lawsuit, was deprived of the means of giving him a good education; and young Scharnhorst was sent to a village school, where he remained till his fifteenth year. A few works on the seven years' war, and the Austrian war of succession, and more particularly the narratives of an invalid soldier, inspired him with a passion for the military life. To be at some future period a serjeant in command of an outpost, was at this time his ideal of felicity. At length his father gained his protracted suit, and with it an estate; and young Scharnhorst was received into the military school of count William of Schaumburg-Lippe-Bückeburg. He subsequently entered the Hanoverian service, and soon distinguished himself by several excellent military works. In 1780, he was appointed teacher in the military school at Hanover. In 1793, he was made captain of horse artillery. In 1794, he distinguished himself so much under general Hammerstein, that George III. gave him a sword of honour, and made him major. The duke of Brunswick recommended him to the king of Prussia, who appointed him lieutenant-colonel. In 1804 he was made colonel; in 1807, major general; and, in 1813, lieutenant-general. In the unfortunate battle of Auerstädt he was wounded twice; yet he took part in the battle of Eylau. After the peace of Tilsit, he was appointed president of the committee for the re-organization of the army, and here displayed great talents, giving the whole army a totally new constitution and spirit. He was equally practical and scientific. He infused into the army a truly national feeling. When Prussia rose *en masse*, in 1813, it was chiefly Scharnhorst who contrived, by means of the corps of volunteers, and the *landwehr* (q.v.) as well as by having previously disciplined many more men than the peace of Tilsit authorised Prussia to keep in actual service, to arm all persons capable of doing military duty. In the spring of 1813, he was chief of the staff in the army under Blücher, in Saxony. In the battle of Lützen, his leg was severely wounded; and, not allowing himself necessary rest, but setting out too soon for Vienna, to gain over the emperor of Austria to the cause of the allies, he died, June 28, 1813, at Prague. His statue stands in the King's square, in Berlin.

SCHAUENBURG, or SCHAUMBURG-LIPPE. See *Lippe*.

SCHEELE, Charles William, a celebrated chemist, who contributed greatly to the improvement of the science which he cultivated, was born at Stralsund, in Sweden, in 1742, and was apprenticed to an apothecary at Gottenburg. He became his own instructor in chemistry, went to Upsal in 1773, where his abilities introduced him to the notice of professor Bergmann, and was admitted an associate of the academy. He subsequently became director of a pharmaceutical establishment at Kioping, where he continued till the close of his life, in 1786. He discovered the fluoric acid, and the acids of tungsten and molybden; and his experiments on barytes, chlorine, various animal and vegetable acids, on the composition of water, and several other subjects, are in the highest degree important.

SCHEEREN; the rocks on the coast of Sweden and Finland, particularly those situated before Stockholm, which extend from seventy to eighty miles into the sea. The Scheeren fleet protects the entrance into the harbour, and consists of flat vessels, able to sail in shallow water.

SCHEERERITE; a newly discovered mineral species, of a combustible nature, found in a bed of brown coal near St Gall, in Switzerland. It exists in loosely aggregated, whitish, feebly-shining, pearly, crystalline grains and folia. It is rather heavier than water, does not feel greasy, is very friable, and destitute of taste. It melts at 36° R. into a colourless liquid, in which state it resembles a fat oil. It seems to be a mineral naphthaline.

SCHEIK See *Sheik*.

SCHELDT, or SCHELDE (anciently *Scaldis*, French *Escaut*); a river which rises in the French department of the Aisne, becomes navigable at Condé, and enters the kingdom of Belgium at St Antring. At Ghent it receives the Lys; and it is further increased by two great canals which form a communication between Ghent, Bruges, and Sas. After passing by Dendermonde, where it receives the Dender, Aupelmonde, where the Aupel, formed by the junction of the Dyle and the two Nethes, empties into it, and Antwerp, where it is 1600 feet wide, it divides, eighteen miles below the latter city, into two great branches, the East and West Scheldt. The latter takes the name of Hondt, and empties into the North sea at Flushing. Both arms are connected with the Meuse and Rhine. The principal places on the Scheldt are Cambray, Valenciennes, Condé, Tournay, Oudenarde, Ghent, Dendermonde, Antwerp, and Flushing. In 1784, the navigation of the Scheldt became a subject of dispute between Austria (then in possession of Belgium) and the Dutch republic. The subject was amicably settled by the mediation of the king of France, Austria renouncing her pretensions to the free navigation of the river, in consideration of some cessions, and the payment of a sum of money by Holland. See *Netherlands*.

SCHEMNITZ (Hungarian, *Selmecz-Banya*; Sclavonic, *Stjawnitza*); a royal free city of Hungary, in the county of Honth, eighty miles east of Presburg; lon. 18° 54′ E.; lat. 48° 48′ N.; population, with the suburbs, 20,211. It stands in the midst of the most picturesque scenery, a few miles from the Raab, and contains some good houses, and tolerably wide streets, though irregularly built, on account of the unevenness of the surface. The mines of Schemnitz are the most extensive in Hungary, and are hardly surpassed by any in Europe. In eighteen mines, 8000 workmen are employed. The yearly value of the products is nearly one million dollars. The chief metals are gold, silver, and lead, combined with copper and arsenic. The whole of the mining works are the property of the government. The extent of ground containing the ores is about six miles square, and includes the town, most of which is undermined.—Schemnitz has a castle, one Lutheran, and four Catholic churches, a Lutheran gymnasium, and a mining academy, which has a director, five professors, and about 150 students.

The course of education is completed in three years. The greatest amount of gold was produced in the year 1690, which yielded 1872 marks, or 132,428 ducats. The value of the gold and silver obtained from 1740 to 1773, was thirty million dollars.

SCHENECTADY; a city of New York, on the south-east side of the Mohawk, fifteen and a half miles from Albany. It is regularly laid out in streets and squares. The Erie canal passes through it; and it contains the county buildings, the buildings of Union college, and the usual variety of dwelling houses, school houses, houses of worship, shops, and offices. Population in 1830, 4256. Union college, in this city, was incorporated in 1794. The whole number of alumni in 1831 was 1373.

SCHERZO (an Italian word signifying *joke*, *jest*), in music; generally applied to a passage of a sportive character in musical pieces of some length; e. g., to symphonies, quartettos, &c. Beethoven has made it a common part of the symphony, and it has taken the place of the minuet. (q. v.)

SCHIAVONE, Andrea, an eminent painter of the Venetian school, whose true name was *Medola*, his surname (the Sclavonian) being derived from his birth place, was born at Sebenico, in Dalmatia, in 1522. His parents, who were in humble circumstances, placed him with a house-painter, at Venice, where, at his leisure hours, he studied the works of Parmegiano, Giorgione, and Titian. The latter took him under his care, and soon after employed him in the library of St Mark, where he is said to have painted three entire ceilings. He was accounted one of the finest colourists of the Venetian school. Two of his compositions are in the church of the *Padri Teatini*, at Rimini, representing the nativity and the assumption of the Virgin. His Perseus and Andromeda, and the Apostles at the Sepulchre, are in the royal collection at Windsor. He died at Venice in 1582.

SCHICHT, John Gottfried, one of the most scientific musicians and composers of sacred music, was born in 1753, near Zittau, in Saxony, and was the son of a poor weaver. In 1776, he went to the university of Leipsic to study law, but soon devoted himself entirely to music. In 1810, he was appointed to superintend the music in the two chief churches at Leipsic. He studied the theory of music with great zeal and success, and composed several beautiful pieces. Among his numerous works is his universal hymn-book, which contains 1285 melodies, including 306 of his own publication, by Härtel, at Leipsic. Several of his compositions are celebrated. He died in 1823.

SCHILL, Ferdinand von, a Prussian cavalry officer, who distinguished himself by his daring expedition against the French, was born in 1773, in Silesia. He was wounded in the battle of Auerstädt, and took refuge in Colberg, where he essentially contributed to save this fortress—the only Prussian one which, in 1806 and 1807, escaped capture. He collected more than 1000 fugitives, and performed the boldest exploits; to reward which, the king made him a major, after the peace of Tilsit. His entry into Berlin, the next year, resembled a triumph: the inhabitants considered it an honour to quarter his soldiers in their houses. Schill burned to meet the French in the field. In 1809, when the Tyrolese rose (see *Hofer*), Dörnberg laboured to excite an insurrection in Hessia; and Schill was secretly instigated (not by the king, nor the government) to rise. He marched, April 28, with his regiment, out of Berlin, as he had done on many previous days, for the purpose of exercise. But this time he did not return. He marched towards the Elbe. Here he found that he had mistaken the disposition of the Saxons. In Halle, he was informed of Napoleon's decisive victories at Tann, Abensberg, Eckmühl, and Ratisbon. Dörnberg's insurrection had miscarried. Schill called his officers together, and they agreed to proceed in their enterprise. May 5, he fought at Dodendorf with the Westphalians. He strove to reach East Friesland. Ten thousand francs were offered for his head, by the king of Westphalia. He now tried to reach the Baltic, probably to obtain support from the British. After some conflicts, he took Stralsund, and fortified it in haste. May 31, Stralsund was taken by Dutch troops, after a desperate defence. Schill himself fell, with many of his brave followers, fighting for a long time in the streets. Twelve officers were taken here and at Dodendorf, and shot at Wesel: the men were sent to the French galleys. A part of his troops forced their way into the open country, and compelled the enemy to allow them a free passage to the Prussian frontier, where a Prussian court-martial broke the officers, and sent them to a fortress. Though Schill's enterprise miscarried, it had an electrifying effect on the Prussians.

SCHILLER, John Christopher Frederic von, was born November 10, 1759, at Marbach, a town of Würtemberg, on the Neckar. His father, originally a surgeon in the army, was afterwards a captain, and finally superintendent of a nursery of trees attached to a castle of the duke of Würtemberg. His parents were pious and upright; and if his early education did not afford much opportunity for the development of his genius, by intercourse with men of talents, or by a wide field of observation, it was eminently calculated to awaken that sensibility to the good and the true, which forms so essential a trait in his character; and his early acquaintance with the Bible, making him familiar with the poetical passages of the Old Testament, contributed to develope his poetical genius. The visions of Ezekiel early excited a great interest in him. When a child, he always manifested an affectionate disposition, and was devotedly attached to his parents, and his sister. He loved, at a very early period, to repeat the sermon which he had heard at church on Sunday. He would stand on a chair and preach with great zeal, never omitting the divisions which the minister had made in his discourse. His charitable disposition manifested itself early, and never left him. For a long time, he wished to study theology; although a brilliant tragedy, which he had seen performed on the stage at Stuttgard when he was nine years old, strongly attracted his attention towards the drama. His first poem is said to have been written the day before his confirmation, in 1772. He had, till this time, received instruction at a good Latin school, in order to prepare himself for the university, as his father strove to procure for him the benefits of a good education, though his own had been neglected. At this time, Charles, duke of Würtemberg, having become weary of parade and dissipation, turned his thoughts to an object of a better character, though still a whim of a petty prince, viz. the establishment of a school on a military-monastic plan, where no effort should be spared to give the pupils the best education of which he could conceive. The duke sought for pupils among the sons of his officers, and offered to take young Schiller. His father could not well refuse such an offer; and, in 1773, Schiller was received into the Charles-school, sacrificing his own inclinations to the interest of his parents. He studied jurisprudence at this institution, in which the pupils were kept so entirely separate from the world, that they were permitted to see no females, except their mothers or very young sisters, who visited them on Sundays. Thus the influences, under which Schiller's talents were developed, were precisely opposite to those which operated on Göthe. The plan of the school was afterwards extended, and medicine allowed to be studied in it; and the school itself was transferred to Stuttgard. Schiller now seized on the opportunity offered, and, in 1775, began to study medicine and Latin zealously. His teachers did not all consider him as possessing uncommon talents; but the duke used to say, "Let that boy alone; he will come to something." When sixteen years old, he published a translation of part of Virgil's Æneid in hexameters, in a Suabian periodical; but poetry was a forbidden fruit for him and his companions, and attracted them, therefore, the more. Some poetical books found their way, by stealth, into the school—the works of Klopstock, Gerstenberg, Göthe, and Lessing. In 1773, Schiller began an epic, the hero of which was Moses; but he destroyed it at a later period. Shakspeare kindled in him a passion for the drama. He undertook two dramatic compositions, which he afterwards burned. Only some passages of one were retained in the Robbers. For two years he studied medicine very ardently, and wrote a Latin treatise On the Philosophy of Physiology, which was never printed. In 1777, at the age of eighteen years, he began to write his Robbers—a composition with many striking faults; but which, nevertheless, awakens a powerful interest. Schiller himself says of it, that "he dared to describe men long before he knew any thing of them within his grated cell;" but, notwithstanding this, it contains some deep views and admirable displays of character. In 1780, when he had finished his studies, he wrote a treatise, entitled Essay on the Connexion of the Animal and Intellectual Nature of Man, printed in 1821, in the *Monatschrift* of Berlin. In the same year, he was appointed physician to a regiment in Stuttgard. Whilst in the school, he had been able to compose only by stealth, and had often reported himself sick, in order to have the use of the lamp in the sick-room, while writing his Robbers, not being allowed a light in his own room. Now he enjoyed, for the first time, some degree of liberty. His Robbers was printed at his own expense, as he could not find any publisher who would take the risk; and, in 1781, he was requested to change the play in certain particulars, so as to adapt it for the stage at Manheim. In 1782, it was performed at Manheim, Schiller having willingly made changes wherever he could be convinced that they were improvements. Not being able to obtain leave of absence, to go out of the limits of the state, he left his regiment without permission, saw his piece performed, and returned with the deepest conviction of the unfitness of his present situation for his talents; particularly as the duke had asked him, after the publication of the Robbers, to show him all his poetical productions, and, upon his refusal, had prohibited him from publishing any thing more, except medical works. In 1783, the Robbers was performed again at Manheim and he again attended the performance, but, this time, was discovered, and put under arrest During his detention, he formed the plan of his *Cabale und Liebe*, and conceived the idea of his Conspiracy of Fiesco. He was now convinced that he must leave Stuttgard, unless he should choose to sacrifice his poetry, the charm of his life; but how could he quit the army, when he had so long enjoyed an education at the public expense? It was not probable that the duke would allow him to go. Some friends proposed to him to propitiate the duke by a panegyrical poem; but, much as he wished to gain his favour, chiefly on account of his beloved parents, he could not bring himself to use these means; besides, he knew that even if the duke should allow him to print poetry again, there was no safety in the exercise of the privilege. Schubart was sighing on Hohenasperg, on account of his *Fürstengruft*, in which he had painted, in strong colours, the burial-place of princes. He now thought of deserting but the feeling of gratitude towards the duke, and the fear that his father, who, with his family, altogether depended upon the duke, would be made to suffer on his account, caused a great struggle in his mind. At last, the impossibility of living without poetry made him resolve to quit his situation. In 1782, he went, under an assumed name, to Franconia, where he was received by the mother of some gentlemen who had studied with him. He lived in great solitude, in a somewhat wild country, in a village called Bauerbach, in order to remain concealed and secure against the possible persecutions of the duke. In this situation he finished his *Fiesco* and *Cabale und Liebe*. In 1783, he went to Manheim, and conceived the idea of Don Carlos and Maria Stuart. During this period, he also composed the Battle, the Infanticide, and poems to Laura. In Darmstadt, he won the favour of the prince by reading to him some scenes from Don Carlos. In 1785, he went to Leipsic; towards autumn to Dresden, where intercourse with men of talents, the charming scenery, the beautiful gallery, and the library, detained him until 1787. Here he became acquainted with the father of the poet Körner. This gentleman has since written a biographical sketch of Schiller. During this period, he studied all the works which he could procure, relating to the history of Philip II., to prepare himself for his Don Carlos; and these studies led to his History of the Revolt of the United Netherlands (Leipsic, 1788, vol. i.) His history of the most remarkable Revolutions and Conspiracies, of which only one volume was published, was also produced at this period. Don Carlos first appeared at Leipsic, 1787. He himself has written the best and severest critique on this piece, in his Letters on Don Carlos. The Ghostseer (Leipsic, 1789) was probably caused by the tales respecting Cagliostro. In 1787, Schiller went to Weimar, where Wieland and Herder received him in a friendly manner. In 1788, he met Göthe, after the return of the latter from Italy. He had seen him but once before, in his boyhood, when Göthe, accompanied by the duke of Würtemberg, visited the academy where he was studying. He did not like him at first: partly through his influence, however, he received, in 1789, a professorship of philosophy at Jena. Schiller entered on his office with the discourse, What is universal history, and for what is it studied? He now devoted himself to history; and the few poetical productions which he wrote at this period are mostly of a historical character, though the Gods of Greece was composed at this time; and he also then formed the idea of an epic poem, the hero of which was to be Frederic the Great. He paid much attention to philosophy, particularly Kant's; and many of his philosophical and æsthetical treatises date from this period. He lectured on history, and began to publish Historical Memoirs from the twelfth Century to the most recent Times (1790); and his History of the Thirty Years' War, which appeared first in the Pocket Almanac for Ladies, from 1790 to 1793. In 1790, he married. The French republic, at the beginning of the revolution, conferred on him the rights of citizenship, and the emperor of Germany ennobled him in 1802. Incessant study, protracted far into the night, and the use of stimulants, undermined his health. In 1793, he visited his parents; on which occasion the duke took no notice of him. The periodical *Thalia* having ceased in 1793, he formed the plan of publishing, with the co-operation of the first writers of Germany, the *Horæ.* He became more intimately acquainted with Göthe, returned with renewed ardour to poetry, and produced, particularly after 1795, the finest lyrical poems which appeared in the *Horæ*, and in his Almanac of the Muses (first number in 1796). In 1797, he produced his first ballads. In 1795, he conceived the plan of a play, to be called the Knights of Malta; but all his other projects gave way to Wallenstein (completed in 1799). Wallenstein's camp is a striking introduction to the parts which constitute the proper tragedy. From 1799, he lived in Weimar, where, in 1800 and 1801, Maria Stuart and the Maid of Orleans were produced. In 1803, appeared the Bride of Messina, and his last dramatic work, William Tell, in our opinion, much the best of his tragedies. Death prevented the completion of his Pseudo-Demetrius. He also adapted Shakspeare's Macbeth, Gozzi's Turandot, Racine's Phædra, &c., for the stage, with which his dramatic works close. Among the numerous criticisms on his merits as a dramatist, we would refer the reader to Frederic Schlegel's Lectures on the History of ancient and modern Literature (2d vol.). After attending a representation of his own Tell at Berlin, where he was received with much honour, he died at Weimar, May 9, 1805, only forty-six years old, mourned by all Germany. Schiller hated nothing so much as the vulgar or mean. He strove perpetually for the noble and the beautiful; hence that melancholy hue which is sometimes spread over his productions. There exist several editions of his works: a very cheap one was published, in 1822, by Cotta, in eighteen small volumes. He left a widow and several children, in narrow circumstances. His correspondence with Göthe is interesting. The correspondence between Schiller and Will. von Humboldt (Stuttg., 1830) is, perhaps, more so; because it gives us more insight into the growth of his mind. The best account of his life is that by madame von Wolzogen, his sister-in-law (Stuttgard, 1830, 2 vols.). The second and third parts of his Wallenstein have been translated into English by Coleridge. His Don Carlos, and his Thirty Years' War, have also been translated.

SCHILLER-SPAR (from the German verb *schillern*, to exhibit a play of colours); a foliated mineral, whose primitive form is unknown. Besides the principal cleavage, there is a second one, less distinct: the inclination of the one to the other is between 135° and 140°: fracture uneven, splintery; lustre metallic, pearly, and eminent upon the perfect faces of cleavage, indistinctly vitreous upon the other faces; colour olive-green and blackish-green, inclining to pinchbeck-brown upon the perfect faces of cleavage; streak grayish-white; hardness about that of fluor; specific gravity 2·69. It frequently occurs intermingled with serpentine. It consists of

Silica	62·00
Magnesia	10·00
Alumine	13·00
Oxide of iron	13·00
	98·00

When exposed to a high degree of heat, it becomes hard, and forms a porcelain-like mass. It occurs at Basta, in the Hartz.

SCHIMMELPENNINK, Rutger Jan, the last chief magistrate of the republic of the United Netherlands, or grand pensionary of the Batavian republic, was born at Deventer, in Holland, in 1761, and educated at Leyden, where he took his degree; on which occasion he published *Dissertatio de Imperio populari rite temperato.* He afterwards practised at the bar with much credit. In 1798, he was appointed ambassador to France, by the Batavian republic, in which post he acquitted himself with satisfaction to his country, and honour to himself. In 1801, he was accredited in the same character, first to the congress assembled at Amiens, and afterwards to England. The war having again broke out, Schimmelpennink resumed his embassy to France. In 1805, he was created grand-pensionary of Holland, but with different powers from those anciently attached to that character. This power, however, ceased in consequence of the elevation of Louis Bonaparte to the throne of Holland, and Schimmelpennink received, in lieu of his office, the grand-cordon of the order of Holland, about that time instituted, and became, by the change in the government, a senator of France, as well as of Holland, the two countries being united. He received also the title of count, with the appointment of grand-treasurer of the Three Fleeces. He filled these offices down to the exclusion of Napoleon from the throne of France, and voted for the creation of a provisionary government in the latter instance. April 14, 1814, he sent in his resignation, and retired into private life. He died at Amsterdam, in 1825.

SCHIRAS; a city of Persia, capital of Farsistan; 160 miles south-east of Ispahan; lon. 52° 44′ E., lat. 29° 37′ N.; population before the earthquake of 1824, 52,000. It is situated between two mountains, on a plain of unrivalled beauty and fertility, the boast of Persia, upwards of twenty miles long, and twelve broad. The environs are laid out in magnificent gardens, the flowers and fruits of which form a favourite theme of Eastern poetry. Hafiz was a native of Schiras. His tomb, and that of Sadi, are in the neighbourhood of the city. The city is about six miles in circuit, but the walls have been suffered to fall to ruin. The streets are narrow, winding, and dirty, and the houses mean. The most remarkable public building is the great bazar, about a quarter of a mile long, built of yellow burnt brick, allotted to the different traders in the city. The citadel, the residence of the governor, is a fortified square of eighty yards. The royal palace within is far from being an elegant structure. Schiras carries on an extensive commerce, which consists chiefly in receiving from Bushire the spices and cotton goods of India, and transmitting them to Ispahan and Yezd. The sides of the hills that bound the plain of Schiras, produce a wine, which has the highest reputation of any in the East. Schiras is an ancient city, and has been the capital of the Persian empire, but exhibits no ruins to attest its former greatness.

SCHIRVAN. See *Caucasus*.

SCHISM (σχισμα, a fissure) is chiefly applied to separations happening through diversity of opinions among people of the same religion. In the Catholic church, the election of popes has often given rise to schisms, by the division of the Christian world in favour of rival candidates. The longest schism of this kind was the Great Schism, which began in 1378, when Urban VI. and Clement VII. both claimed the papacy. This was finally settled by the council of Constance, which effected the general recognition of pope Martin V., who was chosen by it in 1417. See *Pope*.

SCHLANGENBAD, AND LANGENSCHWALBACH; two watering places in Nassau, near the charming Rheingau. (q. v.) The water (from 79—83 Fahrenheit) contains clay and lime. It feels like soap, softens and renders pliable the fibres of the skin, and is excellent in cases of stiffness and contraction. The slime which floats on the water is used to cure old ulcers.

SCHLEGEL; a name distinguished in German literature, chiefly as that of the two brothers Augustus William and Frederic von Schlegel. John Elias, their uncle, born in 1718, at Meissen, was the first German dramatic writer, after Gryphius, who contributed to the advancement of German belles-lettres. He died in 1749.

His brother John Adolphus, a poet and pulpit orator, was born in 1721, at Meissen. He was the author of several valuable works, and made a translation of Batteux's *Les Beaux Arts reduits à un même Principe*, which he accompanied with notes and treatises of his own (1751, 3d edition 1770). He died in 1753.

John Henry, the third brother, was born in 1724, at Meissen, and died at Copenhagen in 1780. He is the author of valuable works on Danish history, and of some translations from English poets into German.

Augustus William and Frederic are the sons of John Adolphus. The first was born September 8, 1767, at Hanover; and Frederic in 1772, at the same place. The former early manifested a great ability for learning languages, as well as much poetical talent. When eighteen years old, he recited, at the lyceum of Hanover, a piece in hexameters on the birth-day of the king, in which he gave a sketch of the history of German poetry, which was justly admired. He first studied theology at Göttingen, but soon quitted it for philology. At Göttingen, he gained the friendship of Bürger, who, in the preface to the second edition of his poems (1789), consecrated him to the service of the Muses, and prophesied his immortality in one of the finest German sonnets. A. W. Schlegel contributed to Bürger's Academy of Belles-Lettres. In 1787, when in the philological seminary under Heyne, a Latin treatise by him, on the geography of Homer, obtained a prize. After leaving Göttingen, he acted as tutor for three years in the house of a banker in Amsterdam. He returned to Germany, and took part in the *Horæ* and Schiller's Almanac of the Muses, in which his translations from Dante, with commentaries, attracted particular attention. Until 1799, he was one of the most active contributors to the General Literary Gazette. In 1797, he began his translation of Shakspeare, of which nine volumes have appeared. Tieck has undertaken the revision of them, and the addition of the pieces not yet translated, in a new edition. We know of no translation so perfect as this. It may well be called a German reproduction of the original. It has made Shakspeare a German popular poet to all intents and purposes, on the stage and in the closet. Schlegel had now become a professor at Jena, where he delivered lectures on æsthetics, and, from 1798 to 1800, was connected with his brother in the publication of the Athenæum, a critical journal, which did much to promote a more independent spirit in German literature. The first edition of his poems appeared in 1800, and Schlegel became the second father of the German sonnet. In 1800, he also published his poetic attack on Kotzebue. In 1801, appeared his Characteristics and Critiques, in two volumes; in 1802, the Almanac of the Muses, published by him and Tieck, together, which is pervaded by a mystico-symbolical spirit. Having separated from his wife, he went, in 1802, to Berlin, where he delivered lectures, published in vol. iii. of *Europa*. His *Ion* appeared in 1803. He took an active part in the publication of the Paper for the Fashionable World, which was opposed by Kotzebue's *Freimüthige* (Liberal); and a paper-war began, not very honourable to the latter. In 1803, appeared vol. i. of the Spanish Theatre, containing three pieces of Calderon; vol. ii. followed in 1809. These translations fully satisfied the high expectations which the public had formed from his translation of Shakspeare. In 1804, he published his Nosegays of Italian, Spanish, and Portuguese Poetry. In 1805, he travelled with madame de Staël, and lived with her at Copet, in Italy, France, Vienna, and Stockholm. In his elegy on Rome, he celebrates his generous friend. He wrote many critiques during this time, partly in the Jena Literary Gazette, partly in the Heidelberg Annals. In 1807, he published at Paris his Comparison of the Phædra of Euripides with that of Racine, which was written in French, and attracted much attention from the French literati. In 1808, he delivered lectures on the dramatic art, in Vienna, and published them, at a later period, in three volumes, 2d edition, 1817. They have been translated into almost all the languages of Europe. In 1812, he made a new collection of his poems (2d edition, 1820). In 1813, he became a political writer in French and German, accompanied the then crown-prince of Sweden, as secretary, and received several orders, and the rank of nobility. After the fall of Napoleon, he returned to madame de Staël, after whose death, in 1818, he accepted a professorship in the university of Bonn, which had been but a short time established. His marriage with the daughter of Mr Paulus, in 1819, was dissolved in 1820. He lately lectured chiefly upon the history of arts and sciences in ancient and modern times, and, since 1820, published the Indian Library, a periodical for promoting the study of the Oriental languages, particularly Sanscrit. He superintended the printing of the great Sanscrit work *Bamâyana*, at the printing-office established by him at the expense of the Prussian government. In 1823, he published *Bhagavad-Gita*, an episode of the epos *Mahabharata*, with a Latin translation. His Oriental studies led him again to France, and, in 1823, to England, where he examined the manuscripts at London, Oxford, Cambridge, and Hayleybury. In the *Bibliotheca Italiana*, he wrote (in 1816), a very learned treatise, in Italian, on the bronze horses at Venice, which he declared to be Greek; another treatise (in 1817) in the *Bibliothèque Universelle*, at Geneva, on the group of Niobe, and, in the *Zeitgenossen*, a life of Necker; remarks on the Provençal language and literature, in French (1818); a historical notice of John of Fiesole; and many other pieces. In 1828, he defended himself, in a pamphlet, against the reproach of crypto-Catholicism.

His brother *Frederic von Schlegel*, born, as we mentioned above, in 1772, was intended by his father for a merchant, but was liberally educated, to leave him more freedom of choice. He became dissatisfied with the mercantile life during his apprenticeship at Leipsic, and his father withdrew him from his situation there. He was now sixteen years old, and devoted himself to philology with the greatest zeal, one year in Göttingen, and the rest in Leipsic; and could say, when he had ended his academic course, that there was no Greek or Latin author of importance whom he had not read at least once. About 1793, he first appeared as an author. He contributed to several periodicals of reputation, and, in 1797, produced his Greeks and Romans; in 1798, his Poetry of the Greeks and Romans (two vols.), a sort of continuation of the first. In Berlin, he undertook, in connexion with Schleiermacher the translation of Plato, but soon abandoned the project. In 1799, appeared the first volume of his Lucinda, which remained unfinished, and is reproached by many as an idealization of voluptuousness. In 1800, he settled as *privatdocent* at Jena, and appeared for the first time as a poet, publishing his productions in various periodicals. In 1802, he lived some time in Dresden, and then delivered lectures on philosophy in Paris, where he also published *Europa*, and occupied himself with the fine arts, and the languages of the south, particularly those of India. In 1808, he published a treatise on the Language and wisdom of the Indians; in 1804, a collection of romantic poems, of the middle ages, from printed sources and manuscripts, in two vols.; and, in 1805, Lother and Maller. We are indebted to him for illustrations of the history of Joan of Arc, drawn from the *Notices et Extraits*. He now returned to Germany, went over, with his wife, to the Catholic faith, at Cologne, and, in 1808, repaired to Vienna. In 1809, he received an appointment at the head-quarters of the archduke Charles, where he drew up several powerful proclamations. When peace was concluded, he again delivered lectures in Vienna, on modern history and the literature of all nations. They were published in 1811 and 1812. His limited views in regard to religion, after his adoption of Catholicism, appear particularly in his modern history. In 1812, he published the German Museum, and gained the confidence of prince Metternich by various diplomatic papers, in consequence of which he was appointed Austrian counsellor of legation, at the diet in Frankfort. In 1818, he returned to Vienna, where he lived as secretary of the court, and counsellor of legation, and published a View of the Present Political Relations, and his complete works. In 1820, he undertook a periodical, called Concordia, intended to unite the various opinions on church and state; but he did not continue it long. He also published, at a much earlier period, the Writings of Novalis (see *Hardenberg*), in conjunction with his friend Tieck, and volume I. of Florentine, written by his wife. In 1807, he also published a German translation of Corinna, before the French original appeared. Since 1822, his complete works have appeared in ten volumes, with some corrections and additions. He died August 9, 1829. The two brothers always lived on the best terms, however great the difference of their views on some points. The influence which they have exercised, particularly Augustus William, on belles-lettres in general, and especially in promoting a more correct understanding of the literature of the middle ages, is very great, and extends far beyond the confines of their native country. They will be remembered in the history of literature, as two minds of uncommon vigour.

SCHLEIERMACHER, Frederic Daniel Ernest, one of the most distinguished German theologians and philologists, was born at Breslau, in 1768, and received his education at the academy of the Moravian Brethren at Niesky. In 1787, he ceased to be a member of this society, left Barby, where he had begun the study of theology, and went to Halle to continue it. In 1794, after having been employed as a teacher, he was ordained a clergyman, and appointed assistant preacher at Landsberg on the Warte. From 1796 to 1802, he was minister in the *Charité* (a great hospital) at Berlin. During this period, he translated Fawcet's Sermons (two vols.), contributed to the Athenæum, conducted by the two Schlegels, and wrote the Discourses on Religion, and the Monologues, and Letters of a Minister out of Berlin. He soon undertook his translation of Plato. Few men ever entered so deeply into the spirit of that author. In 1802, he published his first collection of sermons, which was afterwards followed by two others. In 1802, he removed to Stolpe, where he wrote his Critical View of Ethics. In the same year, he was appointed *professor extraordinarius* of theology at Halle, and preached to the university. In 1807, when Halle was separated from Prussia, he went to Berlin, and lectured there, as well as preached, with the greatest boldness, on the existing state of things, although a hostile force under Davoust occupied the city. In 1809, he was appointed preacher at the Trinity church in Berlin, and married. In 1810, when the new university was opened in that city, he was appointed *professor ordinarius*, as he had been at Halle during the last part of his residence there. In 1811, he was elected a member of the academy of sciences, and, in 1814, secretary of the philosophical class, when he was released from the duties which he had discharged in the department of public instruction in the ministry of the interior. Many papers by him appeared in the Memoirs of the academy, chiefly relating to ancient philosophy. About this period he wrote his View of the Study of Theology. When Schmalz strove to lower the elevated feeling of the people, after the wars of 1813, '14, and '15, to a tone more convenient for an absolute government, he brought out a pungent reply, characterized by a Platonic style of reasoning. His last work was his Doctrines of the Christian Faith. Few men equalled Schleiermacher in activity. He delivered lectures in various departments of theology and philosophy. He preached every Sunday (always without notes), besides writing much, and having a wide circle of official labours. For many years his church was crowded, and his lectures at the university were attended by large numbers of the students. He had many enthusiastic admirers; but the mystical party regarded him with dislike

Schleiermacher did much for the intellectual and religious advancement of his countrymen. His death took place at Berlin, Feb. 12, 1834.

SCHLEISSHEIM; a royal palace three leagues from Munich. It has a magnificent gallery, in which above 2000 pictures are arranged, according to the schools to which they belong.

SCHMALKALDIC LEAGUE. See *Smalcaldic League.*

SCHMIDT, Michael Ignatius, a German historian, was born in 1736, at Arnstein, in Würzburg. He studied theology in the Catholic seminary at Würzburg, and became a priest. During the seven years' war, he went to Suabia, received a benefice, and, in 1771, was made librarian of the university at Würzburg. He received by degrees higher appointments in that sovereign bishopric, did much for education, and, in 1778, began the publication of his German History, to which he devoted the remainder of his life. The empress of Austria was anxious to have him in her service, and caused him to be appointed superintendent of the Archives. Joseph II. made him teacher of history to his nephew, the late emperor, Francis I. After a residence of fourteen years at Vienna, he died there in 1794. Schmidt was the first who wrote a proper history of the German nation: his predecessors only gave the history of the emperors, of the empire, or the estates. His chief aim was to show how the Germans became what they are; and he executed his plan with taste, judgment, and a philosophical spirit. His erudition was great. In the account of the reformation, he is not always impartial or faithful. His style is not to be imitated. This extensive work was published at Ulm, and later at Vienna. Joseph Milbiller continued Schmidt's history from his papers. The Vienna edition of the early history is in eight volumes: of the modern history, in seventeen. Dresch's History of Germany since the Confederation of the Rhine, is a continuation of the work of Schmidt and Milbiller, forming vols. 18, 19, and 20.

SCHNEEBERG; a town in the Erzgebirge, kingdom of Saxony, with 4800 inhabitants. There are important mines of silver and cobalt in the neighbourhood. The inhabitants manufacture lace and similar articles in large quantities.

SCHNEEKOPF. See *Schneekoppe.*

SCHNEEKOPPE (*snow-summit*); the highest elevation of the Riesengebirge (q. v.), 4950 feet above the level of the sea. It is not to be confounded with Schneekopf (*snow-head*), the highest summit of the Thuringian forest, which rises 2886 feet, or, according to some, 2975 feet above the sea.

SCHNEIDER, John Gottlob. This celebrated philologist, born at Kolm, in 1752, studied under Ernesti, at Leipsic, where a wealthy relation in Dresden supported him. His first publication was Observations on Anacreon, in 1770. Soon after, he went to Göttingen, and gained the favour of Heyne, who recommended him to Brunck, whom he accompanied to Strasburg, to assist him in the publication of his *Analecta.* He lived in this place three years, and then received an invitation to the university of Frankfort on the Oder, and there, with Brunck, published Oppian. For thirty-four years Schneider was professor of ancient languages there, and published a great number of critical editions of the ancient classics. He applied himself especially to those works of antiquity which related to natural science, as Ælian's History of Beasts, and Nicander's two didactic poems on medicine, with the Greek Scholia, and the Periphrasis of Eutecnius. His *Historia Amphibiorum,* of which the first two volumes appeared in 1779, from unfavourable circumstances, was not completed. He paid much attention to ichthyology. After thirty years of labour, he published the nine remaining books of Aristotle, containing the History of Beasts (Leipsic, 1811, 4 vols.); also the physical and meteorological works of Epicurus, the *Analecta,* relating to the metallurgy of the ancients, the *Eclogæ Physicæ,* &c. His excellent Greek Lexicon, which has passed through three editions, is the basis of that of Passow, and of the English-Greek Lexicon of Donnegan, (London, 1831). It has contributed not a little to give a new impulse to the study of the Greek language in Germany. He has also edited the political works of Aristotle; the works of Xenophon, Æsop, the Pseudo-Orpheus, the *Scriptores Rei Rusticæ,* Vitruvius, Theophrastus, and other writers. When the university was removed, in 1811, from Frankfort on the Oder to Breslau, Schneider went thither, and was made chief librarian, in addition to his other office. He died there, January 12, 1822.

SCHNEIDER, Eulogius; a German priest, vicar to the constitutional bishop of Strasburg, and afterwards public accuser before the criminal tribunal of the Lower Rhine, one of the most pernicious agents of Robespierre and his confederates. Armed with the authority of St Just and Lebas, commissioners from the convention at Strasburg, Schneider proceeded through the department with a body of troops, and followed by the guillotine, on which he immolated citizens of every rank, sex and age, where interest or revenge furnished the slightest motive for their execution. Schneider was about to set on foot *noyades* at Strasburg, similar to those of Nantes, when he was cut short in his career. St Just and Lebas, displeased, not by his crimes, but by his arrogance, had him arrested, December 20, 1793, and conveyed to Paris, where he was condemned by the revolutionary tribunal, and guillotined, at the age of thirty-seven.

SCHNEPFENTHAL; an institution for education, established by Salzmann, not far from Gotha, at the foot of the Thuringian forest, half a league from the town of Waltershausen. See *Salzmann.*

SCHOEN, Martin, one of the earliest and most distinguished German painters, likewise a goldsmith and engraver, was born at Colmbach, and died, in 1486, at Colmar. The Italians called him *Buon Martino,* or *Martino d'Anversa.* One hundred and twenty-one of his paintings, chiefly on scriptural subjects, are known to be still in existence. Schoen was remarkable for richness of invention, and for the life of his figures.

SCHOLASTICS. This name was given to teachers of rhetoric among the Romans. In the middle ages, a class of philosophers arose under the name of *scholastics,* or *schoolmen,* who taught a peculiar kind of philosophy, which consisted in applying the ancient dialectics to theology, and intimately uniting both. The character of this philosophy varied at different periods, and historians are not agreed as to its origin. Those who regard particularly its theological character make Augustine its founder; others consider it as having commenced in the monophysite disputes of the fifth and sixth centuries. John Scotus Erigena in the ninth century, is commonly called the first scholastic, without making him, however, the proper founder of that philosophy. He was the great philosopher of his age, and his doctrines were connected with those of the New Platonic system. The name *scholastic philosophy* is derived from the circumstance that it originated in the schools instituted by and after Charlemagne, for the education of the clergy. (See *Schools.*) The philosophy therein taught consisted in a collection of logical rules and metaphysical notions, drawn from the Latin commentators on Aristotle, especially the Pseudo-Augustine and Boethius, and from the introduction of Porphyry to the writings of Aristotle. These, under the name of *dialectics*, composed the theoretical philosophy in general, and were connected with the later Alexandrian ideas of God, and of his nature and relations to the world. The original aim of the scholastic philosophy was only to establish and defend the dogmas of the church. Buhle makes three periods:—The first extends to Roscellinus in 1089, or to the contest of the Realists and Nominalists; the second to Albertus Magnus, who died in 1280, when the metaphysical works of Aristotle were more generally known and commented on; the third to the revival of ancient learning, in the middle of the fifteenth century, and the consequent improvement in philosophy. Tiedemann explained the scholastic system as a mode of treating subjects *a priori*, in which, after a statement of the reasons, on both sides, in the form of syllogisms, the decision was made conformable to the opinions of Aristotle, and the church fathers, and the prevailing theological doctrines. According to him, its history begins with the Franciscan Alexander of Hales (a monastery in Gloucestershire), who first made a considerable use of the writings of Aristotle. He died in 1245. This Alexander of Hales was the first complete commentator on the sentences of Peter of Lombardy; was an instructor at Paris, and received the name of *doctor irrefragabilis*. He also wrote commentaries on the psychology of Aristotle. He is not an independent thinker, but decides every case on reasons drawn from other theological writers and philosophers. The second period of the schoolmen, according to Tiedemann, begins with Albert the Great, who wrote commentaries on the physical and philosophical writings of Aristotle, and on several books of the Scriptures. Still greater is the reputation of his pupil, Thomas Aquinas (q. v.), the father of ethics, and a strict adherent of Aristotle, on whose works he left fifty-two commentaries. His opponent was the Franciscan John Duns (q. v.) Scotus, who is not to be confounded with John Scotus Erigena, before mentioned. Duns Scotus is one of the most hair-splitting logicians, and known by his scholastic or barbarous Latin. His opposition to Thomas gave rise to the parties called *Thomists* and *Scotists*, whose controversies became peculiarly warm, when Scotus declared himself opposed to the strict Augustine doctrines of grace defended by Thomas, and which had maintained their place in the church for centuries. Another acute scholastic of this age was the Franciscan mystic Bonaventura, the pupil of Alexander of Hales; Hervey, a general of the Dominicans; Francis Mairon, a Franciscan, pupil of Duns Scotus, and founder of the Sorbonne disputation in Paris, at which the respondent was obliged to defend the controverted positions from six o'clock in the morning to six in the evening, and was only permitted to take a short meal, without leaving the room. The third period of the scholastic philosophy some begin with William of St Pourçain or Durandus de Sancto Porciano (who died at Meaux, in 1332); though, more properly, the third period of scholastic theology may be considered as commencing with him. From his skill in solving difficult questions, he received the name of *doctor resolutissimus*. He made a distinction between theological truth, which rests on the authority of the church, and philosophical truth, which is established, independently of the church, on private conviction, and affirmed that many things were theologically true, and yet philosophically false. Others begin the third period of the scholastics with William Ocham, or Occam, (who died in 1347), a Franciscan, who revived again the nearly forgotten disputes of the Nominalists, and distinguished himself as a fearless defender of Christian liberty against the assumptions of the popes. One of the last scholastics of this period was Gabriel Biel (who died in 1495), a moderate Nominalist, and active in founding the university of Tübingen in 1477.

Tennemann makes four periods of the scholastic philosophy:—I. The first, to the twelfth century, is characterized by blind Realism, and filled by detached philosophical essays on doctrinal theology. To this period belong John Scotus Erigena, Berengarius of Tours, and his opponent Lanfranc, Damianus, Hildebert of Lavardin, and the great Anselm of Canterbury.—II. Separation of Nominalism and Realism. This period extends from Roscellinus to Albertus Magnus, in the beginning of the thirteenth century, and can boast of Roscellinus, Abelard, William of Champeaux, Hugh de St Victor, Richard de St Victor, Gilbert Porretanus, Peter Lombard, Peter of Poitiers, Alanus Insulensis, John of Salisbury.—III. Exclusive prevalence of Realism. Complete union of the doctrines of the church and the Aristotelian philosophy, from Albertus Magnus, to Occam, in the fourteenth century. To this period belong Alex. of Hales, Vincent of Beauvais, Bonaventura, Thomas Aquinas, Peter Hispanus, Henry Goethals, Rich. Middleton, Duns Scotus, Francis Mairon, St Pourçain.—IV. A renewal of the contest between Nominalism and Realism, in which the former was victorious, and a separation of theology and philosophy gradually took place. In this period we find William Occam, Marsilius Ingenuus, Robert Holcot, Gabriel Biel, John Buridan, &c. See Tennemann's *Sketch of a History of Philosophy*, 4th ed., or 2d rifacimento by Wendt.

On account of the excessive subtilty which prevailed in the scholastic philosophy, the expression *scholastic* has come to denote the extreme of *subtilty*. After the reformation and the revival of letters, the scholastic system gradually declined. From that time we find but few distinguished scholastics, as the Spanish Jesuit Suarez, who died in 1617. With lord Bacon and Descartes, a more enlightened and independent philosophy commences.

SCHOLIA; explanations annexed to Greek or Latin authors, by the early grammarians, who taught the practical part of philology. The writer of such scholia is called a *scholiast.* There are many scholia to Greek authors extant, fewer to Latin. The names of the scholiasts are mostly unknown. Those, however, of Didymus, John Tzetzes, and Eustathius, the famous scholiast of Homer, have been preserved. The two last belong to the twelfth century.

SCHOMBERG, FREDERIC HERMANN, duke of, a distinguished military officer, a native of Germany, born about 1619, was the son of count Schomberg, by the daughter of lord Dudley. He began his military career under Frederic, prince of

Orange, and afterwards went to France, where he became acquainted with the prince of Condé and marshal Turenne. He was then employed in Portugal, and established the independence of that kingdom, obliging the Spaniards to recognise the claims of the house of Braganza. He commanded the French army in Catalonia in 1672, and was afterwards employed in the Netherlands, where he obliged the prince of Orange to raise the siege of Maestricht. For these services, he was rewarded with the staff of a marshal of France in 1675; but on the revocation of the edict of Nantes, marshal Schomberg, who was a Protestant, quitted the French service, and went to Portugal. Being also driven from that country, on account of his religion, he retired to Holland, and subsequently engaged in the service of the elector of Brandenburg. He went to England in 1688, with William III., and, after the revolution, was created a duke, and obtained a grant of one hundred thousand pounds. He was sent to Ireland, in the following year, to oppose the partisans of James II. Being joined by king William, he was present at the battle of the Boyne, in which he lost his life, July 1, 1690, owing, it is said, to an accidental shot from his own troops, as he was passing the river to attack the enemy.

SCHON (German, for *beautiful*); an adjective which begins innumerable German geographical names.

SCHONBRUNN. See *Vienna*.

SCHONEN, OR SCANIA (Swedish, *Skane*); a province of Sweden, in the south of Gothland, bounded north by Halland and Smaland, east by Blekingen and the Baltic, south by the Baltic, and west by the Sound, which separates it from Denmark; 4000 square miles; population, 334,744, differing in dialect and manners from the other Swedes. This is the most level, pleasant and fertile part of Sweden, and produces plenty of rye, barley, oats, peas, buckwheat, honey, cumin-seed; likewise pit-coal, chalk, tiles, and pot-ashes. It has several rivers and lakes, all well stored with fish. The principal towns are Malmoe, Lund, Landscron, Helsinborg, and Christianstadt. It is now divided into the governments (*lane*) of Christianstadt and Malmoehus. Schonen formerly belonged to Denmark, but was ceded to Sweden with some of the neighbouring districts, by the peace of Roeskild, in 1658.

SCHOODIC, OR PASSAMAQUODDY. See *Croix, St.*

SCHOOLMEN. See *Scholastics*.

SCHOOLS. This momentous element of modern society is one of many instances, which show the slow progress of mankind in perfecting the most important parts of the social machine. Schools are of comparatively recent date, and their benefits are mostly confined to Europeans and their descendants. A historical sketch of their progress will be interesting, as showing how slowly and laboriously these institutions, which diffuse sound knowledge in a thousand channels, and irrigate, as it were, the whole field of society, have reached their present degree of improvement, which is far from being satisfactory. In antiquity, education and instruction were entirely a matter of domestic concern. In countries where priestly or royal despotism prevailed, schools were first established for the sons of the great and for the priests. Moses was educated in a priestly school in Egypt, Cyrus at a seminary connected with the Persian court; the Indian Bramins imparted instruction in secret schools; in Palestine, those conversant with the Scriptures taught in the schools of the prophets, at later periods in the synagogues, and the schools of the rabbies, where inquiring youths assembled. The advantages of these schools were accessible to few; the means of learning were limited to conversation, reading, committing to memory, and hearing the explanation of sacred books. More was done under the Greeks. As early as 500 B. C., boys and girls, in the Greek cities, learned reading, writing and arithmetic in private schools, as the legislators, except in Sparta, left the education of children entirely to the parents; and what Lycurgus did in Sparta was much more intended for the development of the physical powers than of the intellect. Young persons, who were eager for knowledge, resorted to the instructions of philosophers and sophists, the finest example of which are the Socratic dialogues. The country people remained in great ignorance. The same was the case with the Romans, who, from 300 B. C., had schools for boys in the cities, and from the age of Cæsar, who conferred the rights of citizenship on teachers, possessed the higher institutions of the grammarians. In these, Latin and Greek were taught scientifically, and young men of talent went from the grammarians to the rhetoricians, who, like Quintilian, prepared them, by exercises in declamation, for speaking in public. But a regular school system no where existed with the ancient nations. Schools were institutions confined to particular classes, or were the fruit of private enterprise. The emperor Vespasian was the first who established public professorships of grammar and rhetoric, with fixed salaries attached to them, for the education of young men for the public service; and, 150 A. D., Antoninus Pius founded imperial schools in the larger cities of the Roman empire, which may be compared to the German gymnasia. Though there was no systematic co-operation among the various professors, the imperial school at Rome, after the organization which it received, in 370, from Valentinian, resembled rather the German universities. The most celebrated place for scientific culture was Athens, to which students from all parts of Europe resorted, as late as the ninth century, and often led very dissipated lives. In the lower schools of the ancient Romans, the discipline was very severe. The rod was not spared; and Ovid is not the only one who complained of the severity of an Orbilius. Christianity, by degrees, gave a new turn to education. In the East, it gradually came entirely into the hands of the clergy, and under their superintendence. Schools were instituted in the cities and villages for the catechumens, and in some capitals, catechetical schools for the education of clergymen, of which that in Alexandria was the most flourishing, from the second to the fourth centuries. From the fifth century, however, these higher establishments seem to have been discontinued, and the episcopal or cathedral schools to have taken their place, in which the young men, intended for the clerical profession, learned, besides theology, the seven liberal arts—grammar, logic, rhetoric (these three made the *trivium*), arithmetic, geometry, astronomy, and music (*quadrivium*), from the *Encyclopædia* of the African Marcianus Capella, a poor compendium, which appeared at Rome in 470, and which remained for upwards of 1000 years the common text-book in the schools of Europe.

The imperial schools declined, and became extinct, because, in the confusion which followed the irruption of the barbarians, the salaries of the professors were not paid; and the cathedral schools and parochial schools for boys and young men of all classes in the cities, were established, in which the learning of reading and writing was followed by the study of the *trivium*, which had become popular; hence they received, at a later time, the name of *trivial schools*. These schools, after the sixth century, were surpassed in importance by the conventual schools, which, at first, were only seminaries to prepare persons for the monastic life, but were soon resorted to by laymen. The Benedictine convents—those links between the civilization of ancient and modern times—flourished in Ireland, England, France and Germany, from the sixth to the eleventh century, and were the chief seats of modern European civilization. The discipline was severe and monkish; but the instruction was generally better than in other institutions, partly on account of the many distinguished literary men who embraced the monastic life, partly on account of the peculiar opportunities which they had to form considerable libraries, in consequence of the constant communications among the various convents, and the pleasure which the inmates of these took in copying; partly on account of the *esprit de corps* of the order, which delighted in being able to show distinguished members or eminent men who had been educated in its schools. There were several priests or monks, whose reputation was such as to attract pupils from great distances. The conventual schools at Armagh and Clogher, Canterbury, York and Westminster, at Tours, Rheims, Clermont, Paris, at Salzburg, of St Emmeran at Ratisbon, Hersfield Corvey, Fulda, Hirschau and St Blasius on the Schwarzwald, &c., were particularly famous. The scholars who proceeded from them gave to the scholastic philosophy its character and name, the teachers in the conventual schools being called *scholastici*. These schools rivalled the episcopal and cathedral schools, yet were always directed more to the advantage of the priesthood than to purposes of general instruction, which was owing to a variety of causes springing from the then existing state of things. Charlemagne, had in view a system of national instruction, when he issued, in 789, his decree for the improvement of the schools of his empire. Not only every bishop's see and every convent, but every parish, was to have its school, the two former for the instruction of clergymen and public officers, the latter for the lower classes. At his court, Charlemagne established an academy of distinguished scholars, to whom he himself resorted for instruction, and whom he employed to educate his children, and capable boys belonging to the nobility and other classes, in the court-school (*schola palatii*). Alcuinus was made rector of these two schools, which accompanied the court in its changes of residence. The ladies of his court also partook in the benefits of instruction, and some nunneries, in their institutions for female education, rivalled the seminaries in the monasteries. The ladies learned Latin, which was then the common medium of communication between persons of different countries, as French is at present. Charlemagne took upon himself the superintendence of the schools in his empire, had reports sent to him, made examinations, and delivered addresses to the pupils of the school at his court. These schools often enabled him to discover the talents of young men, whom he appointed to high offices in the church or the state. It is one of the noblest traits in his character, that, in that age of gross ignorance, he laboured with zeal for the instruction of the nations under his sway.—See a short article entitled Charlemagne's Life in Private and at Court, in the third volume of Raumer's Historical Pocket Book (Leipsic, 1832).

When the clergy of the cathedrals, in the ninth century, adopted the canonical life, the cathedral schools originated, which approached, in character, to the *trivial schools*, so called, whilst the episcopal schools remained seminaries for the clerical order, or for particular professions, and at a later period became transformed into universities. Mayence, Treves, Cologne, Liege, Utrecht, Bremen, Hildesheim, had, in the tenth century, celebrated cathedral schools. The encouragement which the higher authorities had afforded them, however, was soon discontinued. Charlemagne's decrees were forgotten during the disputes of his grandsons about the government, under whom, also, the above-mentioned court school was abandoned; and his great creation declined as the school establishment of the great Alfred, in England, which was begun with equal zeal, and on an equal scale, in the ninth century, was destroyed by the invasions of the Danes, though Edward the confessor endeavoured to restore it. In the mean time, the school of the rabbis, among the Jews in Syria, Northern Africa, and even in Europe (Jewish academies existed in the seventh century, at Lunel, in France, and, in the tenth and eleventh centuries, at Cordova, in Spain), preserved the remains of ancient learning; and the Arabian schools established in the ninth century in the Oriental and African caliphates, and in the Moorish kingdoms in Spain, exhibited a freer spirit and better taste. From them a knowledge of the mathematical and medical sciences was first communicated to the south of Christian Europe. In Italy, where, after the barbarism introduced by the Goths and Lombards, king Lothaire had been the first to establish schools in the ninth century, for the large cities, as well as in Spain and France, the influence of Arabic civilization became observable, in the institution of schools for qualifying men for the different professions. At Salerno, Montpellier and Seville, Arabic physicians taught; and the works of the Saracens on natural history and mathematics were sought for even by Christian scholars. The development of the papal canon law gave occasion to the foundation of law schools, among which those of Bologna and Lyons acquired the greatest reputation. The academical privileges, which the former of these two received, in 1158, from the emperor Frederic I., became the foundation of the constitution of the continental universities which originated in the twelfth and thirteenth centuries. The inactivity and luxury of the clergy had led to the neglect of the cathedral and conventual schools, and they rapidly declined. The new institutions which had grown up were necessary to form new teachers and to revive the taste for science. But even these became subject to undue clerical influence, as since the beginning of the thirteenth century, the mendicant monks not only connected popular schools with their convents, and undertook the education of the children in the cities, but also obtained entrance into the universities as teachers, where they laboured to augment the importance of their various orders and the power of the pope.

Thus the state of the schools in the middle ages, was by no means so flourishing as might have been expected from the activity of former centuries and the institutions of Charlemagne. Dictating took the place of lecturing even in the higher schools; mere exercises of memory held the place of erudition; the dead letter predominated, and an intelligent investigation of the subjects studied was little practised. The pupils of the Latin or *trivial* schools wasted almost all their time in copying the manuals. In the lower parish schools, the monks would not even permit the scholars to learn to write; being desirous to confine the art, which was highly lucrative and important before the invention of printing, to the clergy (it was called the *ars clericalis*); and the privilege of establishing writing schools for the children of citizens could not be obtained by the magistrates but by special agreement with the clergy. But at length, with the increasing power of the cities, the citizens became more independent and the magistrates themselves began to take care of the instruction of youth, which had been so much neglected by the clergy, and to establish schools, in which reading, writing, and the *trivium* were taught. For these, as well as for the cathedral and parish schools (the canons and parish priests having ceased to occupy themselves with the instruction of youth), itinerant monks and students were taken as teachers. This gave rise to a separate class of teachers, which indeed belonged to the clerical order, then in the exclusive possession of learning, but resembled the corporations of mechanics in its regular gradations, and in the unsettled life of its members, who wandered from place to place much to the detriment of their morals. The schoolmasters were engaged by the corporation of cities and the parish ministers, were liable to be dismissed on a year or three month's warning, and were obliged to employ assistants, proportioned to the number of their pupils, and to pay them out of their own salaries. These assistant teachers (*locati*, because they were hired; *stampuales*, because they gave elementary instruction) were subject, as well as the head masters, to the parish ministers, who used them as writers and church servants. Sometimes the school-masters, who taught Latin, were called *rectors;* the assistant teachers, who taught singing, reading, and gave religious instruction (the latter consisting in making their pupils commit to memory the creed, the ten commandments, prayers, and psalms), were called *cantors*. From this division originated in some countries, for instance in Germany, the division of Latin and German schools, which were, however, most generally united. The elder pupils of the highest class frequently travelled from one school to another, pretending to detect hidden treasures, and practising various mummeries and fooleries; hence they were sometimes called *histriones* (because they formed the first companies of actors, as, in France, the Jongleurs and Gaillards), sometimes *vacantivi* (i. e. idlers). Generally they carried with them younger pupils, who were their slaves, to all intents and purposes, and had to procure them support, by begging and stealing, if there was no other way, and retained for themselves only such portion of their acquisitions as their tyrants were willing to let them enjoy. In the fourteenth and sixteenth centuries, these bands of vagrants, among whom there were sometimes *vacantivi* thirty years old, who were yet unable to construe a Latin author, were most numerous in Germany. As students, they were allowed to wear swords, and thus were frequently tempted to disturb the public peace. When they stopped to pursue their studies in a school, they found lodgings in the school-rooms, or about the churches, and lived upon the charity of the citizens. If there were several schools in one place, disputes often occurred between the pupils, which were decided by arms, according to the fashion of the middle ages. As late as the beginning of the sixteenth century, Luther complained that such vagrants received appointments as teachers, because, generally, these *vacantivi*, who had hardly seen a university, were the only persons who could be hired as school-masters, since the more learned youths were ambitious of clerical benefices and academical professorships. Unique in its kind, in the history of the schools of this period, was the pious fraternity of the Jeronymites. They consisted of clergymen and laymen, who lived together, occupied partly with mechanical arts, partly with the instruction of girls and boys, to whom they taught reading, writing, and useful arts. For boys of talent and diligence, there were Latin classes. On the model of these schools, others were established in the Netherlands, on the Rhine, and in Northern Germany. These soon came into communication with the Greeks who had fled to Italy; and thus the study of the classics became more cultivated. Through the efforts of men like Thomas a Kempis, Hegius, Erasmus, Agricola, Reuchlin, and Melanchthon, a liberal study of the remains of classic antiquity was commenced. Much was done, in and after the last half of the fourteenth century, to promote this object by Italian courts and universities, through the instrumentality of learned Greeks, and of the Platonic academy of Florence, and towards the end of the fifteenth century, through the learned Rhenish society, established by Conrad Celtes. The result at first, was only an intellectual luxury for the great and the learned; yet many skilful teachers proceeded from Basle, Tübingen, Heidelberg, and Wittenberg, which, after the time of Luther and Melanchthon, became the head-quarters of instruction for Germany.

In all countries where the reformation became general, it had a decided influence upon the schools It even had a considerable influence in several Catholic countries; but its effects were more decided in Germany. According to the advice of the reformers in that country, who, in 1529, furnished a great example of the care which government should bestow on the schools, by the visitations which they made of the schools in the electorate of Saxony, the corporations of cities founded gymnasia and lyceums with permanent teachers. The property of the convents, and of the church in general, which had been confiscated by the governments, was, in most cases, applied to the use of schools. The number of these institutions was now much increased, and their character elevated, and scientific school-masters were soon formed. The newly invented art of printing assisted greatly in this work of improvement. Only the conventual, cathedral. and *trivial* schools of the Catholics remained restricted to the narrow limits of the seven liberal arts. Schools for girls were founded, and in the villages, instructors were appointed to teach the catechism. Whilst schools were thus acquiring a systematic character in the sixteenth century, and the classical languages were even taught in the smaller towns, the Jesuit schools arose towards the end of this century among the Catholics. They soon obtained, by their better taste and more scientific spirit, a superiority over the old Catholic schools. But, though they have exercised a great influence, as has been stated in the article *Jesuits*, to which we must refer our readers, they were yet more calculated for the children of the wealthy, or those of uncommon talent among the poorer classes, than for the general education of the people. In Spain and Italy, their schools were long the best; in Hungary and Poland, they were the only ones excepting the conventual schools and the colleges of the Piarists; and even in America and Asia, they contributed zealously, by their missions, to the diffusion of European civilization. But a variety of circumstances contributed to produce degeneracy in these latter schools as well as in those of the Protestants. The former became again confined to a fixed routine; the latter passed from the strictness of the conventual schools to licentiousness, through the influence of the privileged universities. To this was added, in Germany, the thirty years' war, in which fanaticism on both sides destroyed what had been judiciously established. Yet, about this time, some great men distinguished themselves as writers on education, as lord Bacon, and the exiled bishop of the Moravians, Amos Comenius.

Considerable influence was exerted upon the system of education, towards the end of the seventeenth century, by the principles of Pietism and Quietism, established by Fénélon and Spener, which was the basis of the instructions of A. H. Franke. Instructors in his spirit spread themselves, in the first half of the eighteenth century, from Halle, over the whole of Northern Germany. Yet the lower schools were bad in comparison to the higher; and in these, Latin and Greek seem to have been the only thing considered essential. The idea of an education adapted to the nature and general destination of man, suggested by Bacon and Montaigne, received, about this time, a more complete development from Locke and Rousseau; and the Philanthropinism* of Basedow and his friends introduced it, in the second half of the eighteenth century, into Germany. Schools were now instituted, in which, besides languages and history, natural history, technology, civil arithmetic, &c., were taught. They held an intermediate place between the primary schools and the gymnasia. In 1807 and 1808, the Bavarian government established, besides the gymnasia for classical education, seminaries, called *Real-instituten*, where young persons who intended to become merchants, apothecaries, miners, manufacturers, artists, &c., were instructed in that knowledge which is of most general utility—in history, religion, modern languages, mathematics, and the natural sciences. The *trivial schools*, which continued to exist, both in the larger and smaller towns, were changed, after the end of the eighteenth century, into public schools, both common and high, and many schools were established for paupers. In fact, every where in Protestant Germany, and in some other countries, effectual steps were taken for the advancement of school instruction; but the Catholic countries took little part in this advancement. The Catholic governments trusted implicitly to the Jesuits, Piarists, Ursulines, and some other orders, unconcerned whether the instruction which they afforded did or did not correspond to the demands of the time. By the abolition of the Jesuits, in 1773, moreover, a chasm was produced, which the schools of the Piarists, mostly of the *trivial* kind, were unable immediately to supply. Austria felt this abolition less than other Catholic countries, on account of her normal schools for the lower orders, intended to serve as a pattern for all the common schools in the empire. Her school system, however, was far from perfect. Under the late emperor, professorships of pedagogics (for the instruction of teachers) were established in the universities and episcopal seminaries. Many gymnasia, common schools, Sunday schools, &c., have likewise been instituted in Austria. The normal schools were imitated by most of the Catholic states of Germany. Italy, Portugal, and Spain continued inactive, as they had been for a long series of years: they left instruction to the clergy and to chance. They have only episcopal seminaries and the Piarist and conventual schools. The institutions of Leopold in Tuscany, for popular education, after the Austrian model, were disturbed by the wars of the revolution. The French had not time to do a great deal for the education of the people; and, in fact, education had not made any great advances among themselves; and when in Spain and Italy, the old rulers again took possession of the country, they considered education dangerous, as productive of a revolutionary spirit. The Jesuits, since their revival, have as yet been too unimportant to produce any great effect. In those countries of Europe where they have exerted an influence on instruction of late, it has been an injurious influence, intended to counteract the spirit of the time.

In France, much remains to be done for education. Before the revolution there were, besides the episcopal seminaries and conventual schools, lyceums and colleges in the cities, where young persons were prepared, under a system of monastic discipline, for the higher seminaries. The government did nothing for the education of the people at large, and the clergy, though possessing so large a proportion of all the property in France, and having the instruction of the people under their especial care, left them in abominable ignorance; whence the horrid outrages that disfigured the early part of the revolution. Some elementary schools were supported here and there, by religious orders, or private persons; but the instruction was scanty, and in all the institutions of education was behind the age. During the revolution, the schools were declared to be under the care of the state. It was not to be expected that a good plan could be adopted immediately. The polytechnic school, however, was excellently arranged. Napoleon established several military schools, and others for instruction in trades and arts, and an imperial university was created, to have the supreme direction of instruction in France. But the plan was on a military principle, and as little fitted to promote the true purposes of education as the monastic narrowness of former ages. Academies (schools for the different professions) and lyceums, on an entirely military plan, were introduced. The "secondary schools" actually went into operation in but very few places, and the "primary schools," (elementary and village schools) hardly any where. The instruction in private establishments was subjected to much restriction, except in regard to mathematics and the natural sciences. The religious instruction was to be founded on the "Catechism of the Empire." This was the state in which the Bourbons found the schools in France. Changes were made by them, but not for the better. The clergy laboured with them to restore a state of things which had long gone by. In 1816, elementary schools on the Lancasterian principle were introduced, which would have become a great blessing to the country; but the royalists and clergy, after a while, procured their abolition. The lower classes receive very little instruction in France, and there cannot be much doubt that a third part of the whole population of that country, which considers itself the most civilized on the earth, grows up without education. The whole number of individuals, subject to the conscription in 1830, was 294,975. Of these, 121,079 could read and write; 12,801 could only read; 153,635 could neither read nor write; in respect to 7460, it could not be ascertained what was the extent of their attainments.* M. Dupin, in his work, cited below, page 71, says, that "it must be acknowledged that there are no parts of Europe, except the Pyrenæan peninsula, Turkey, the south of Italy, Greece, and Russia, in which education is in a more backward state than in France." For further information we refer our readers to an article, "The State of Education in France," in the Quarterly Journal of Education for July and October, 1831, containing the answers given by the *Société pour la Propagation de Connaissances Scientifiques et Industrielles* to questions put by the Society for the Diffusion of Useful Knowledge in 1830. Quite recently, professor Cousin (q. v.) addressed several letters on the state of education in Germany, to the minister of public instruction in France, after careful personal examination of the subject.

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* The system of Philanthropinism was directed against the prevailing faults, both of school instruction and of domestic education, against the tyranny of the rod, the stiffness of the ordinary discipline, the inconvenient and prejudicial nature of children's dress, the want of proper bodily exercise, the system of loading the memory without exercising the active faculties, &c. The object was to develope the energies of children in a more natural way, and with less constraint and hardship. Several institutions, called "Philanthropins," were established, of which that of Salzmann was the only one which survived to the nineteenth century.

In England, no general system of education for all classes of the community has ever been established. The efforts of Brougham to introduce such a system were frustrated by party spirit and ecclesiastical prejudices. Something, however, has been accomplished for the instruction of the lower classes by individual exertions, the institution of infant and Sunday schools, and the operation of the Lancasterian mode of instruction. In the middle ages, besides the two universities, the education of youth was provided for by the cathedral or episcopal schools, of which there was one in each diocese, under a *scholastic*, as the superintendent of the school was called, in which the studies were mainly intended as a preparation for the priestly office; the conventual or abbey schools in the monasteries, in which all the sciences were taught (the ecclesiastics were, at that time, lawyers and physicians), and schools in the principal towns and cities. But the great public schools of England are mostly of later origin. Winchester college was founded by bishop Wykeham, as early as the reign of Edward I. (1387), Eton, with seventy king's scholars or collegers, was founded by Henry VI., in 1440; Westminster, with forty scholarships, in 1560, by Elizabeth; and Harrow free school was also instituted during her reign. The course of instruction in these high schools is not very extensive, nor judiciously conducted. At Eton, for instance, little more is taught than the Latin and Greek languages; the scholarships depend merely upon seniority, and entitle the scholars to a fellowship in King's college, (Oxford), and finally to a university degree without examination. The course of reading is rather limited and injudicious, and the elementary books poor. The case is not very different at Westminster. There are numerous charitable foundations for education in England, the enormous abuses of which were exposed by the persevering and indefatigable exertions of Brougham in successive reports to the house of commons: in one instance, for example, where the funds of the charity yielded £450 per annum, only one boy was boarded and educated; and in another case, in which the revenue of the establishment was £1500 per annum, the incumbent left the care of the school to a carpenter in the village, to whom he paid £40 a year. If these abuses have been remedied, and the facilities for popular education in some degree increased, much yet remains to be accomplished in England.

In Scotland, more provision has been made for popular education. By an act of William and Mary, it is required that there shall be a school and school-master in every parish. In 1803, the limits of the salary were raised from 100 and 200 merks to 300 and 400 merks (a merk is about thirteen pence, Sterling), with the addition of a house and one quarter of an acre of land. In 1831 some further addition was made to the schoolmaster's salary. The proprietors of land in the parish are assessed for the latter expenses, and that of the school-house; but the salary is paid half by the proprietors and half by the tenants. In a large part of the country, nearly the whole population is able to read and write; but in some parts, chiefly in the Highlands, the parishes are so extensive that there are many who have no means of education within reach, and three or four schools would be required to accommodate all the inhabitants. In some of the principal towns, the parochial schools are of a higher description, and are entitled *grammar schools*. Within the last twenty years, academies, in which the higher branches are taught, have been established in some of the larger provincial towns. See *Scotland*.

In Sweden, the schools are much on the same footing as they were in the seventeenth century among the German Protestants. The clergy, in the possession of the church property of their Catholic predecessors, show little disposition to apply a part of it to the public instruction.

The government of the vast Russian empire has directed its attention to a system of schools for a hundred years past, before which there were only conventual schools for the clergy, and some institutions for the sons of the great, established—almost by force—by Wladimir the Great. According to the decrees of the emperor Alexander, schools for the circles, districts and parishes, were to be instituted throughout the empire, in order to strike an effectual blow at the deep ignorance of the Russian people. The circle schools exist at present on the pattern of the German gymnasia, in most of the capital cities of the governments; the district schools are found in some towns of a middling size; the parish schools, however, in very few villages.

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* The law of September 14, 1791, enacted that a system of instruction for all the people should be organized, which would be gratuitous with respect to those kinds of knowledge which are indispensable for all classes. But this law was never carried into effect. The ordinance of April, 1816, declared that every commune should be bound to provide primary instruction for all the children of the commune, giving this instruction gratuitously to indigent children. But the means of carrying this into effect have been wanting, the majority of the communes being unable to provide a salary for a primary instructor. It would seem indispensable, that the state or the departments should form a common fund to pay, or to assist in paying, the teachers in the poorest communes. A law on this subject is of urgent necessity.

and the greatest and best part of this plan remains, as yet, unexecuted.* Somewhat earlier, there existed, in the German provinces of Russia, good gymnasia, and some common and country schools; but the latter are still in a very low condition. The education of Catholic youth was attended to by the Jesuits, who were admitted by Catharine II. into White Russia.

Poland, where, formerly, the nobility only were instructed by the members of religious orders (Lazarists, Piarists and Jesuits), had, before its partition, some gymnasia, founded towards the end of the eighteenth century, and some common and country schools, but no well arranged school system. During the existence of the grand-duchy of Poland, something was intended to be done for the education of children of both sexes; but it was not executed, and the last catastrophe, which has reduced Poland to a Russian province, must have a most injurious effect on the few means of education which the country affords.

Denmark, Holland (which has far outstripped Catholic Belgium), and Switzerland, strive to keep pace with Protestant Germany; but the improvement of Switzerland has not been so great as might have been expected, after the impulse given by Pestalozzi. Some cantons, however, have seminaries for the education of teachers; and Denmark has had them for forty years. The Danish government issued, in 1814, a school ordinance for its German provinces, which contains many wise directions. Holland distinguished itself early by institutions for philological instruction, and the society for the public welfare (founded in 1784) has given a good organization to the common schools.

In no part of the continent, however, has so much been done for schools, and education been made so much a particular branch of study by thinking men, as in Germany. Bavaria was the first of the larger states in which this subject received the particular attention of the government. Since 1806, the schools in that kingdom have been conducted systematically on a general plan. There is a particular department, in the ministry of the interior, to superintend the subject of education, whose authority extends to all the various schools and institutions. The smaller states have done much for schools, as Nassau, Lippe-Detmold, Anhalt-Dessau, and the Saxon dukedoms. Though Hanover and Brunswick established seminaries for the formation of instructors in the last century, their subsequent progress has been comparatively slow. Saxony, which took the lead in this particular after the reformation, always had its schools for instruction in philology, and also good common schools; yet it did not advance, as might have been hoped.—See Ruhkopf's *History of Schools and Education in Germany* (in German).

Out of Europe, the United States of America only have an effective system of education. In the United States, the provisions for education are made chiefly by the state authorities, and are very different in different parts of the country; but no where has popular education in general received more attention, or been carried to greater extent. Of the colleges of that country we have given some account in the article *College*. Next in rank to these seminaries are the establishments called *academies*, founded by private bequests, or public grants, in which Latin and Greek, and commonly one or more modern languages, with geography, history, the elementary portions of mathematics, and physical philosophy are generally taught. In the grammar schools, the course of study is very different; sometimes only reading, writing, grammar and arithmetic are taught, but geography is frequently studied in them, and sometimes history. Below these, in some places, there are primary schools, kept by women for younger children, and numerous infant schools, which take the child almost from the cradle. In this way, a child may, in some instances, be educated, from the age of three or four, to that of sixteen or seventeen, without any fee for tuition. The federal government has, in the disposition of the public lands, made provisions for common schools, by reserving one section of each township, for the support of schools in the township, besides making other reservations for colleges. (See *Public Lands.*) The system of free schools has been carried to the greatest perfection in the New England states, in which, though the details of the system differ much, yet the leading principles are the same. More is generally done than is required by law, by the towns in their corporate capacity, besides the great numbers of private schools, all over the country, for all ages and of all descriptions. Thus, in the city of Boston, in which the legal expenditure on the free schools would amount to but 3000 dollars per annum, the yearly expense is actually upwards of 60,000 dollars, supporting eighty schools, with 7430 pupils; besides which there are 155 private schools in the city, with 4018 pupils, making a total of 235 schools, and 11,448 pupils, in a population of less than 62,000 souls. In Massachusetts, the laws require that every town or district, containing fifty families, shall be provided with a school or schools, equivalent in time to six months for one school in a year; if containing 100 families, twelve months; 150 families, eighteen months; and the towns are required to raise the sums of money necessary for the support of the schools in the same manner as other town taxes. The state of Connecticut has a fund, derived from the sale of lands in Ohio, of 1,882,261 dollars, the income of which (upwards of 72,000 dollars) is appropriated to the support of common free schools. The number of children between four and sixteen, in 1828, was 84,899. The great principle on which the system is founded, is, that elementary education should be so free as to exclude none, and the schools so numerous as to be within the reach of all, at the same time that their management should be principally intrusted to the people themselves, in small districts, so as to excite and sustain a general interest among all classes. The tax is on property, and thus the poorer classes are saved from a burden which might otherwise be too great for them, at the same time that they pay enough to render them desirous of securing the benefit of the schools; and the rich are glad to secure the most effectual protection for order and property, in the general intelligence and morality of the people. (See the valuable paper of professor Ticknor, in the English Quarterly Journal of Education, No. IV.) For the population of New England, consisting of less than 2,000,000, there are between 10,000 and 12,000 schools, 150 academies, and eleven colleges, besides great numbers of private schools and boarding schools. We have given an account of the state of schools in New York, in the article *New York*, division *Public In-*

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* See the *Statistique et Itinéraire de la Russie, par J. H. Schnitzler* (Paris, 1829).

struction. New Jersey has a school fund of 245,404 dollars, the income of which, with a tax of $\frac{1}{2}$ per cent, on the capital stock of the banks, is distributed, in small sums, to towns which will raise an equal sum for the support of schools. In Pennsylvania, little has been done for common education. In the Report of the Society for the Promotion of Public Schools (April, 1831), it is stated that, during the preceding year, the number of children between the ages of five and fifteen, was 400,000, of which there were not 150,000 in all the schools in the state. There is no legislative provision for the support of schools. In Delaware, there is a school fund, the income of which is distributed to such towns as will raise a sum equal to that which they receive; and, in Maryland, some attempts have been made to establish a general system of primary education; but it has been only partially accomplished. The New England system of free schools has been introduced into Ohio (March, 1831); and, in Indiana, the constitution makes it the duty of the legislature to provide, by law, for a general system of education, in which tuition shall be given gratis. Similar provisions have been made in Illinois; and in Kentucky attempts have recently been made to effect the same purpose. But in the Southern and Western States generally, there is no legislative provision for the establishment of common schools, on the plan of those of New England. The Sunday schools in the United States are, in a great measure, intended for religious instruction, and are therefore composed of the pupils of the day schools.—Further information on this subject may be found in the American Annals of Education (1826, seq.), various numbers of the North American Review, and American Almanac (vols. ii. and iii.)

In Canada, education is, generally speaking, in a very low state, which is greatly owing to the population being much scattered.

In the West Indies, the schools, though improving in some parts, as in Cuba, must be subjected to very different influences before they can reach any thing like perfection; and in South America the people labour under the immense disadvantage of having been formerly under the Spanish and Portuguese governments, which did nothing for the education even of their European subjects; to which must be added that the population is scattered, and that they are under the exclusive sway of the Catholic clergy. Common schools have been established, of late, in several colonies of Europe (e. g. at the cape of Good Hope), and several schools, on the plan of mutual instruction, in the East Indies. Independent of the influence of European civilization, schools of different degrees are to be found in the East Indies, China, Japan, and the other empires of Eastern Asia, in which despots or priests give children such an education as will best fit them for their service. Persia, also, has established schools, in which boys of all classes learn to read and write. Turkey and Northern Africa alone limit instruction to the explanation of the Koran. A few schools (e. g. in Asia Minor), established by American or European missionaries, need hardly be mentioned in this general view. Missionaries have also established schools in various parts of Greece; yet it has been found impossible to do much in the present disturbed state of that unfortunate country.

The time in which we live is so remarkable for the important changes produced in almost all departments of human activity, by the power of science and general information, that, in most civilized countries, the urgent necessity of general education has been clearly felt, and measures have been taken (though not always the most effective, as might well be expected) to bring about this object. The changes which have taken place in science, and in the whole condition of modern nations, who are no longer dependent, like those of the middle ages, for their means of intellectual culture, on the remains of ancient civilization, necessarily make the character of school instruction very different from what it was formerly, when the whole intellectual wealth of Europe was contained in two languages; and though these noble idioms will always retain a high place in a complete system of education (see *Philology*), yet their importance is comparatively less, while that of the natural sciences, history, geography, politics, &c., has very much increased. All this has had a great influence upon schools, and will have a still greater. The importance of education, moreover, is now set in strong relief by the general conviction, entertained in free countries, that the general diffusion of knowledge is the only true security for well regulated liberty, which must rest on a just sense of what is due from man to man; and few results can be attained by the student of history and of mankind more delightful than this of the essential connexion of light and liberty; not that great learning necessarily leads to liberty; history affords many instances which disprove this; but that a general diffusion of knowledge always tends to promote a general sense and love of what is right and just, as well as to furnish the means of securing it. We see, therefore, in our age, not only a great increase in the number of schools, but also the introduction of various new kinds, as the Sunday schools (q. v.) and the infant schools; the latter we think of advantage in the case of parents who are unable to take care of their children at home, but injurious where (as it happens but too often) they induce mothers, the natural guardians of their infants, to neglect those duties which Providence has best qualified them to discharge, and thus lose those opportunities of exerting a beneficial influence on the opening character of the infant, which are fully perceived only by the keen eye of parental love.

From the circumstances which we have mentioned, a great zeal for the improvement of schools has been exhibited, in several countries, since about the year 1818, a few years after the conclusion of the general peace in Europe; and we shall therefore take one more rapid view of the state of schools in Europe since that time. Prussia has done, of late, more than any other country of equal or larger size, for the improvement of schools. In addition to the nineteen seminaries for the education of instructors, which existed in 1818, nine new ones have been founded, so that, since 1825, 1500 teachers are continually educated in twenty-eight large seminaries and twenty-one of less size. The demand for teachers is great, as the country schools alone require 21,000. The expense of these seminaries for teachers is 100,000 Prussian dollars yearly, which is paid by the government. The government have also sent teachers into foreign countries to study their school systems. All the countries of Germany have seminaries for teachers, and many laws have been enacted to induce or oblige the poorest classes to send their children to school; still, however, much remains to be done, to bring the instruction of the people at large to the level of the demands of the age. The last reorganization of the Bavarian system of education took place in 1825. If much has been done in Germany for common schools, still more has been done in several states of that country for the gymnasia, or learned schools. The great increase of aids to study, lexicographical, grammatical, metrical, critical, and archæological, has given the learned schools a degree of activity and efficiency which, perhaps, twenty years ago, would have appeared unattainable. In Austria alone, the gymnasia are, as yet, circumscribed within comparatively narrow limits. In Russia, the school system has not effected what it promised. The circle schools are, as yet, confided to military directors, in most cases, and the district schools, on account of the low degree of civilization among the mass of the people, are obliged to employ themselves on the very rudiments of knowledge; and, for the parish schools, masters are yet to be formed. In the provinces on the Baltic, the schools come somewhat nearer to the German. For the army, several Lancasterian schools have been established since 1820. Sweden has, according to the decree of December 16, 1820, received a new organization, which has considerably improved the learned and *trivial* schools, but the country schools very little. Seminaries for schoolmasters do not exist there at all. In some larger cities, Lancasterian schools have existed, since 1820, for the children of soldiers and of the poor. But the degree of information to be found among the Swedish peasants, who not unfrequently instruct their children themselves, somewhat remedies this evil. Denmark has established many Lancasterian schools. This system was first introduced into the army in 1819, and in 1822, with some modifications, was recommended by the king to all the common schools, of which above 2000 have adopted it. (See the article *Mutual Instruction.*) In 1825, a law was passed in the Netherlands, which declared the establishment of schools, public and private, dependent upon the government. In France, the ultra-montanists and the aristocratic party, after the restoration, laboured, with the aid of the ministry, to bring back the system of education to the narrow limits within which it was confined by the clergy before the revolution. They broke up the Lancasterian schools, established under the influence of the constitutional party, and favoured the Brethren of Christian Doctrine and the Jesuits, whose colleges not only became again institutions of education, but also had a decided influence upon others. But the French schools, generally speaking, with the exception of mathematics and the natural sciences, teach little thoroughly; skilful teachers are found only in large cities; the small towns have but very ordinary schools, and a great part of the peasants grow up without school education. There is a tax on the learning of Latin in all the colleges of the kingdom, amounting to fifteen francs annually for each individual, which, with other heavy taxes, (some paid by the teachers themselves), goes into the treasury of the university at Paris. This explains how the schools, which are a considerable expense to other governments, yielded, in 1826, to the French government, 2,526,910 francs, and cost only 2,213,200 francs, affording therefore a surplus of 313,710 francs. All kinds of instruction in France are dependent upon the university. It was always one of the points most insisted on by the liberals, that instruction should be freed from this subjection, particularly since the amendment of the charter in 1830; and promises to this effect have even been made by the ministers; but as yet the relief has not been obtained. In the Sardinian states, where the supervision of education was restored to the Jesuits, the learning of reading and writing is prohibited, by royal decree, to all who do not possess a capital of 1500 lire, and the study of the sciences to all who have not an income of 1500 lire. The Italian schools stagnate under similar influences. Naples has not, as yet, given particular attention to this subject. In the States of the Church, Modena and Lucca, it is left to the Jesuits. In Tuscany, where a private association introduced the Lancasterian system into Florence, in 1821, education stands on nearly the same footing as in the Austrian dominions in Italy, in which it is at least established on a regular system, and is not left in the hands of the Jesuits, although it may not be more progressive than in Hungary. In Spain and Portugal, the state of education is particularly low. The activity of the university and many schools was, for a time, interrupted by the revolution. Yet the cortes had already directed their attention to education, as the ninth chapter of their constitution proves, by which, if the instrument had remained in force, a complete system of school instruction would have been established. Immediately after the revolution of 1820, the ninth chapter was carried into effect; but all that had been done was overturned in 1823, after the restoration. Many schools and other institutions ceased to teach; and where instruction continued to be given, it has been on the old scholastic system of the middle ages. A few years since, a decree was issued, prohibiting philosophy to be taught in the universities! In many places, there is not even a school for elementary instruction. For the higher classes, there are some boarding schools, in the French style.

SCHOONER; a small vessel with two masts, whose mainsail and foresail are both suspended by gaffs, like a sloop's mainsail.

SCHOREEL, John, a distinguished Dutch painter, received his name from Schoreel, a village near Alkmaer, where he was born in 1495. His love of painting appeared in his boyish sports. Hs copied every painted window, and covered, with delicate figures, every horn-inkstand that came in his way. At the age of fourteen years, he was placed with the painter Will. Cornelis. At the age of seventeen, he travelled to Amsterdam, and entered the establishment of Jacob Cornelis, one of the most celebrated painters and engravers on wood, of that period. Here he spent several years. He next repaired to the first of the masters then living, John of Mabuse, in Utrecht. The disorderly life of his new master disgusted the young Schoreel; and he visited, successively, many large cities, where there were painters of eminence, especially Cologne and Spire, where he studied architecture and perspective. He also visited Dürer, in Nuremberg, and was received kindly. At the age of twenty-two, Schoreel passed through Carinthia to Venice. One of his countrymen, in a monastery there, persuaded him to undertake a pilgrimage, with him, to Palestine. For three years, he remained within the walls of Jerusalem, sketching views of the city and surrounding country; and a large painting, probably by him, is still in the church, in the place where Christ is said to have been born. On his return, he spent some time at Rhodes, which he painted, together with the surrounding country; and afterwards at Rome, among the works of Raphael, Michael Angelo, and Giulio, till Adrian VI., a native of Utrecht, ascended the papal chair, in 1522, and committed to him the superintendence of the Belvedere. The death of Adrian, the following year, induced Schoreel to return home through France and Amsterdam. He now executed many splendid pieces, in Utrecht, afterwards in Harlem, and, from time to time, in other cities in the Netherlands. He died at Utrecht, December 6, 1562. He has been compared with John van Eyck, whom he equalled in splendour and truth of colouring, in expression, in warmth of representation; and, at the most, was inferior to him only in the execution of particular parts. Unhappily, the rage of the fanatics, in a subsequent age, for destroying pictures, was fatal to many of his most valuable works.

SCHORL. See *Tourmaline.*

SCHORLITE. See *Topaz.*

SCHREVELIUS, CORNELIUS, a learned critic, was born at Harlem, about 1614. His father was rector of the school of Leyden, in which office he was succeeded by Cornelius, in 1642. The latter had taken his degree in medicine; but on his promotion to the school, he turned his attention exclusively to classical pursuits, in the course of which he published several *Variorum* editions of the classics, which display more industry than taste or judgment. His name is now principally known by a Manual Greek and Latin Dictionary (1645), which has been often reprinted, in most countries of Europe. An edition, with great improvements, by Fleury-Lécluse, appeared at Paris in 1820; and it has been translated into English, with very extensive additions and improvements, by John Pickering (Boston, 3d edition, 1832). He died in 1667.

SCHUBART, CHRISTIAN FREDERIC DANIEL, a German poet of much natural talent, but of a defective education, and an irregular life, was born in 1739, at Obersontheim, in Suabia. He began the study of theology at Jena, in 1758; but his dissipation involved him in debt. For some time he supported himself by preaching; but music, for which he had much talent, drew him away from theology. In 1764, he married; but the union was an unfortunate one for his wife. In 1768, he became director of music at Ludwigsburg, near Stuttgard, but gave himself up, more and more, to dissipation, so that he was imprisoned for some time, and exiled from Würtemberg. He now lived an unsettled life, undertook various employments, which he was always obliged to resign on account of his bad life, his attacks upon the clergy, &c. His Chronicle became a popular journal. But, in 1777, he was seduced into the Würtemberg territory, and arrested on account of some things which he had written. He remained ten years in prison at Hohenasperg, was liberated at the request of Mad. Karschin, and made director of the music of the ducal theatre at Stuttgard. He began several works, but, before they were completed, he died, in 1791. His poems, which contain much inflated and unpolished matter,—interspersed, however, with many flashes of genius,—were published at Frankfort on the Maine, in 1787, 2 vols.; another edition in 3 vols., 12mo., at the same place, with a life of him; and several other pieces in prose. His Miscellaneous Works (Zürich, 1812, 2 vols.), were published by his son.

SCHULTENS, ALBERT, a celebrated Orientalist, born at Gröningen, in 1686, studied theology and Arabic at that place, at Leyden and Utrecht, became a preacher in 1711; professor of the Oriental languages in 1713, and in 1717, university preacher at Franeker. His chief works, *Origines Hebrææ*, and *Institutiones ad Fundamenta Linguæ Hebraicæ* (1737), had an important influence on the study of the eastern languages. His son *John Jacob* (1716—1778) was the author of several learned dissertations and treatises. *Henry Albert*, son of the latter, born at Herborn, in 1749, was educated at Leyden, where he studied Arabic and Hebrew, and afterwards became a commoner in Wadham college, Oxford, and received the degree of master of arts there. On his return to Holland, he was chosen professor of the Oriental languages at Amsterdam, where he resided until the death of his father, whom he afterwards succeeded at Leyden. He died in 1793. Besides his Arabian Anthology (1772), he published an edition of Pilpay's Fables, and a supplement to the *Bibliothèque Orientale* of D'Herbelot.

SCHUMLA. See *Choumla.*

SCHUYLKILL, a river of Pennsylvania, which rises in Lucerne county, runs south-east, and unites with the Delaware, six miles below Philadelphia. It is 140 miles long, and navigable for boats ninety miles. The Tulpehocken, a navigable stream, flows into the Schuylkill a little above the town of Reading. There are falls on the river five miles above Philadelphia, and others near Norristown. A part of the valuable coal called *anthracite*, which is now so much used in Philadelphia, and exported thence to all the northern cities, is obtained from mines situated on the Schuylkill.

SCHWABACH, ARTICLES OF; a confession of faith, drawn up by Luther, for the princes and cities assembled, in October, 1529, at Schwabach. The cities of South Germany, inclining to the Swiss doctrine, refused to subscribe the above articles, on account of the doctrine of the presence of Christ in the eucharist, which is strongly expressed in them by Luther. These articles, adopted by the Smalcaldic league, became thus a chief obstacle to a union between the party of Luther and Zuinglius.

SCHWABENSPIEGEL (i. e. *Mirror of the Suabians*); a collection of legal precepts and customs in Upper Germany, made probably between 1268 and 1282, by an unknown monk. It does not exist in its original form, as it was changed in many countries. It never acquired the same authority as the *Sachsenspiegel.* It went out of use in the fifteenth and sixteenth centuries. It is best printed in Senkenberg's *Corp. Jur. Germ.*

SCHWARTZ, BERTHOLD, born in the first half of the fourteenth century, was a Franciscan friar of Friburg, or, according to some, a monk of Cologne, and has been regarded as the inventor of gunpowder and fire-arms. He is said to have been mixing together the ingredients of gunpowder,—viz. nitre, sulphur and charcoal,—in an iron mortar, in the prosecution of some alchemical researches, when the composition exploded, from an accidental spark occasioned by the collision of the pestle and mortar. The former being driven forcibly to a distance, Berthold thence conceived the idea of forming pieces of artillery. Such is the story commonly told of the invention of gunpowder, said to have occurred in the early part of the fourteenth century. There is, however, much discrepancy in the accounts of this discovery: and it is certain that

Roger Bacon, who died in 1292, was acquainted with an inflammable composition similar to gunpowder, the knowledge of which Europeans appear to have derived from the Orientals. See *Gunpowder*.

SCHWARTZBURG, or SCHWARZBURG; a sovereign principality of Germany, in the interior of Thuringia, and bounded by Saxe-Gotha and the Prussian province of Erfurt. The house is very ancient, and is divided into two lines, Schwartzburg-Sondershausen, and Schwartzburg-Rudoldstadt. In the diet, they have, with Oldenburg and Anhalt, one vote (15th), and in the *plenum* a vote each. The territories of both are hilly, interspersed with fertile valleys. The forests are extensive, and contain mines of iron, alum and cobalt; also quarries of marble, freestone and slate. The religion is Lutheran.

Schwartzburg-Rudolstadt lies further to the south, and borders on the grand-duchy of Saxe-Weimar. Rudolstadt (4000 inhabitants) is the chief town, and residence of the prince. The other principal towns are Frankenhausen and Ilmstadt. Population, 58,000; square miles, 400; revenue, 136,500 dollars; debt, 113,000. Rudolstadt has estates, but Sondershausen is an absolute government.

Schwartzburg-Sondershausen is almost surrounded by the Prussian province of Saxony. Sondershausen (3321 inhabitants) is the chief town, and residence of the prince. The other principal towns are Arnstadt, Breitenbach, and Graussen. Population, 48,106; square miles, 350; revenue, 170,000 dollars; debt, the same.

SCHWARTZENBERG, Charles Philip, prince of, Austrian field-marshal, born at Vienna, in 1771, served in the early wars of the French revolution, in which he distinguished himself on several occasions. In 1805, he was at the head of a division under general Mack, and at Ulm commanded the right wing of the Austrian forces. After the fortune of the day was decided, he forced his way through the enemy at the head of a body of cavalry. The battle of Austerlitz, at which he was present, was fought against his advice, before Bennigsen and the archduke Charles had come up. In 1808, Schwartzenberg was ambassador to the Russian court; and, in 1809, commanded the rear-guard after the battle of Wagram. In the campaign of 1812, he commanded the Austrian auxiliary corps of 30,000 men, in Galicia,—which, however, remained almost entirely inactive,—and at the close of the year, he received the marshal's staff. In 1813, he was appointed to command the army of observation in Bohemia; and after the declaration of war by Austria, prince Schwartzenberg was named generalissimo of the allied forces. (See *Dresden*, *Russian-German War*, and *Leipsic, Battle of*.) After Napoleon's return from Elba, he commanded the allied forces on the Upper Rhine; but the contest was decided at Waterloo, without his participation. The prince died in 1820. Many of his military dispositions have been censured; and Napoleon declared that he could not command 6000 men.—See Prokesch, *Mémoirs of Prince Schwartzenberg* (in German, Vienna, 1823).

SCHWARZ, or SCHWARTZ (German *black*); an adjective which begins a great number of German geographical names.

SCHWARZWALD. See *Black Forest*.

SCHWEIGHAUSER, John, one of the most distinguished German philologists, was born at Strasburg, in 1742, and became professor of the Greek and Oriental languages in that place in 1778. He published valuable editions of Polybius, Athenæus, Arrian, Epictetus, &c., and especially of Herodotus (6 vols., 1816). His academical writings were published in 1807 (2 vols.), and in 1824 appeared his *Lexicon Herodoteum* (2 vols.) He died in 1830.

SCHWEITZ, or SCHWYTZ; a canton of Switzerland, bounded N. W. and N. by Zug and Zürich, E. by Glarus, S. by Uri, and W. by Underwalden and Lucerne; population, 36,040, nearly all Germans, and Catholics; square miles, 336. It is surrounded by Alpine mountains, between which are a few valleys, tolerably fertile. The chief mountains are Mytten, 6300 feet high; Righi, 6000; and Pragel, 5500. The soil is better adapted to pasturage than tillage, and the wealth of the inhabitants consists in cattle. It was here that, in the beginning of the fourteenth century, the standard of Swiss liberty was first erected; and this petty canton had the honour of giving its name to the confederation. (See *Switzerland.*) The capital of the canton, of the same name, two miles from lake Lowerz, is situated in a fertile valley, between the mountains of Mytten and Righi; population, 5000.

SCHWERIN. See *Mecklenburg-Schwerin.*

SCHWERIN, Kurt Christopher, count, Prussian field-marshal, was born in 1684, in Swedish Pomerania, and, after having served in the Dutch armies, entered the Prussian service in 1720, with the rank of major-general. Frederic II., who ascended the throne in 1740, esteemed him very highly, created him field-marshal, and count, and gave him the command of his forces in the Austrian succession war (1741). In 1756, he was again placed in command of one of the Prussian armies, and fell at the head of his troops, before Prague, in 1757. See *Seven years' War;* consult also Frederic's *Histoire de mon Temps.*

SCILLY ISLANDS; a group of islands, situated at the western extremity of the English channel, about thirty miles westward of the Land's End, and belonging to the county of Cornwall. Their total surface is about 4700 acres; and of St Mary's, the largest, 1640 acres. There are only six among them of any importance, namely, St Mary's, Tresco, or Trescow, St Agnes, St Martin's, Breyer, and Sampson, the rest, eleven in number, being barren rocks, interspersed with shoals and quicksands, which have often proved fatal to mariners. It has been conjectured that these islands were, at a remote period, joined to Cornwall, and that the intervening ridge of land was submerged by an earthquake, or by the violence of the sea. The inhabitants are chiefly engaged in agriculture, in fishing, and formerly in the manufacture of kelp. The crops principally raised are barley, pease and oats, with a small proportion of wheat. The language spoken in the Scilly Islands is an intermixture of the west country dialect with common English. On several of the islands are remains of what are commonly called Druidical antiquities. The situation of the Scilly group renders the islands important for the assistance or supply of ships bound to England from the south; and they were therefore appointed as a place of rendezvous by the Admiralty about twenty years age. On St Agnes is a lighthouse, lat. 40° 53′ 30″ north. Population of the Scilly Islands in 1841: St Mary's, 1545; Tresco, 430; St Agnes, 243; St Martin's, 214; Breyer, 121; and Sampson Isle, 29;—total 2582.

SCIO (Chios, called by the Turks *Saki-Adassi*), one of the largest and richest islands of the Grecian archipelago, contains 392 square miles. It is separated from the continent of Asia on the east by a narrow strait (*Stretto di Capo bianco*), and has a healthy climate. But little attention is paid to raising grain or keeping cattle, but it produces abundantly silk, cotton, turpentine, marble, fruits, and particularly wine (Chian wine was celebrated even in antiquity), oranges, lemons and mastic (to the amount of eighty tons a year, valued at 800,000 piasters). The beauty of the females is celebrated. On this island, remains of ancient art are still to be seen; among others, the school of Homer, the fountains of Helen, the ruins of Delphinium, Cardamissa, and a temple of Neptune. The chief city, of the same name, on the eastern coast of the island, has a harbour, spacious, but very difficult of access, and about 20,000 inhabitants. The population of the whole island was estimated, before the Greek revolution, at upwards of 120,000; mostly Greeks. When Greece revolted, in 1821, the Sciots attempted to drive away the Turkish garrison. The Turks threw themselves into the citadel, and continued the contest with the inhabitants till 1822, when a Turkish fleet landed, under the command of the capudan pacha, and a massacre began, in which, after many thousands had fallen in battle, from April 14 to 20, 40,000 persons, without distinction of age or sex, were put to the sword, and some of them cruelly tortured. The fugitives escaped to the mountain fastnesses or to the opposite continent, or, in Greek vessels, to the other islands. At length the Greek fleet attacked the Turks, and destroyed several of their vessels with fire-ships. The capudan pacha was obliged to retreat, half consumed, from his ship lying in flames, and to land upon the shore, where he had, a short time before, murdered the innocent without compunction, and where he now perished in the greatest tortures. But the Greeks were not strong enough to occupy the island, and the vengeance of the Turks now assailed the mastic villages, the people of which had remained quiet during the revolution. June 19, 1822, these villages were burnt, and 30,000 Christians murdered or sold into slavery. In March, 1823, the population of the island was only 16,000. Scio from that time has remained under the dominion of the Turks. Fabvier's attempt to reconquer Scio, in 1827, failed. A part of the unhappy Sciots fled to the ships of the French admiral De Rigny.—Before the devastation of Scio, there was a school in its chief city, and it was the see of a Greek and Roman bishop. It has been lately reported that the sultan had ordered the restoration of the property and estates of the Sciots without reservation. In 1770, a naval engagement took place between the Russians and Turks, between this island and Tschesme, which lies on the opposite coast of Natolia; a part of the Turkish fleet was burned by the Russians.

SCIOTO; a river of Ohio, the second in size of those which have their whole courses in this state. Its general course is south; its length about 170 miles; and it flows into the Ohio river by a mouth 150 yards wide, between Portsmouth and Alexandria. It is navigable for boats about 130 miles, and is connected with the Sandusky by a portage four miles long. The country watered by this river is known by the name of the Scioto country, and is remarkably fertile. On the eastern bank, about five miles above Columbus, is an almost inexhaustible quarry of marble, which receives a good polish, and is of a beautiful gray colour.

SCIPIO AFRICANUS (the elder), PUBLIUS CORNELIUS. The Cornelian family was rich in great men, among whom the conqueror of the formidable Hannibal is particularly distinguished. His father, who bore the same name, fought without success, but not without honour, against the Carthaginians, in the beginning of the second Punic war. In the bloody engagement on the river Ticinus, in Upper Italy, the young Scipio, hardly sixteen years old, took an active part, and is said to have saved the life of his wounded father. From the still more fatal battle of Cannæ (B. C. 216), he escaped with the remains of the conquered army. The wreck of the cavalry, having assembled at Canubium, chose him for their commander, and he led them back to Rome. Here his remarkable firmness induced a company of young men of distinction, who had resolved to flee from Italy in despair, to remain and defend their country. With his drawn sword he stepped boldly among them, and threatened to kill whoever should refuse to take the oath that he proposed. Astounded by his boldness, they did as he desired, and aided to save Rome. Such spirit met with public honour. At the age of twenty, he was made curule edile, and, a few years after, was appointed proconsul in Spain. Here he overcame the enemy, not merely by his courage and conduct, but also by his magnanimity and kindness. His first successful enterprise of importance was the conquest of New Carthage. With great boldness, he attacked the city on the side washed by the sea, which was almost defenceless, and easiest to be surmounted, with 500 of the most courageous soldiers, who waded through the low water at ebb tide, took one of the gates by storm, and, while the troops who were to assail the city on the land side, were storming other parts, the enemy were so terrified that they hastened into the castle, and quickly surrendered this hold also. The Africans who were taken he sold for slaves; the Spaniards received their liberty. This treatment made a deep impression on the latter, and they separated from the Carthaginians. He gained still more esteem among the warlike Celtiberians, by restoring the beautiful bride of the young prince Allucius, who was brought to him as a prisoner, and who had made a deep impression on his heart, as soon as he heard of her being betrothed to the prince. The ransom, which her overjoyed parents urged upon the conqueror, he bestowed upon the youthful pair. Allucius, as a token of his gratitude, immediately entered the Roman service with a body of chosen troops, and rendered important service. The next year, Scipio totally defeated Asdrubal, Hannibal's brother, notwithstanding his advantageous position, and compelled him to retreat to the Pyrenees. Thus the Carthaginians lost still more adherents in Spain. A near relative of Masinissa, king of Numidia, who was among the prisoners, he liberated, and conferred on him rich presents. This kindness procured for him the favour of the Numidian monarch, and led to the advantageous alliance which Rome soon after concluded with this powerful prince. The title of *king*, which the Spaniards offered to the victorious general, he steadfastly refused. He now laboured to reduce the disaffected tribes in the interior of Spain. In the mean while, the Carthaginians collected a fresh army, which was led by Mago and Hanno. Scipio attacked them, and, after a long and bloody engagement, destroyed the greater part of them. The remainder, abandoned by their commanders, were allowed to retire undisturbed, in consequence of the intercession of Masinissa. Leaving his army in Spain, he now went to Africa, to induce Syphax, king of Massæsylia, to become the ally of Rome; in which he succeeded. After his return, he chastised the cities which had revolted during his absence. A short time after, he was attacked by a disease, which nearly cost him his life, and induced several Spanish tribes to revolt again from the Romans; even two legions in his own army mutinied. But Scipio recovered, and by his energy and prudence quelled the disturbances. He also obtained possession, by negotiation, of the valuable city of Gades.—Thus the Carthaginians were wholly driven from Spain, and the greatest part of that country was subjected to Rome. The general entered Rome in triumph, amid the loudest acclamations of the people. Scarcely had he arrived, before he petitioned the senate for permission to conduct an army to Africa, that he might attack the enemy in their own country. In vain did Fabius Maximus exert his influence and eloquence to frustrate the design. Scipio was empowered to go to Sicily with an army and a fleet, in order, after mature deliberation on the means of effecting a landing on the coast of Africa, to execute the plan which he had formed. He arrived successfully at the island, and dispatched his friend Lælius, with a detachment of troops and of the fleet, to the enemy's country. On landing, Lælius found the country almost destitute of soldiers, took and plundered several rich cities, laid waste the fields, and gained over Masinissa to the designs of Scipio. At the approach of the hostile fleet, he returned, laden with booty, to Sicily. Scipio now laboured with redoubled activity to equip the troops for his great enterprise; and then hastened to the shores of Africa. His unexpected arrival spread terror among the Carthaginians, who were without an army or a good general. But they succeeded in detaching the powerful Syphax from the Roman alliance, and he came with an army of 60,000 men to their aid. Towards winter, the Romans were forced to retire to a distance from the city by the superiority of the enemy: the negotiations for peace produced no result. The proconsulate of Scipio in Africa, therefore, was prolonged, till the war should be terminated. The following spring, the affairs of the Romans took a more favourable turn. The camp of Syphax was assailed, and his whole army destroyed; Asdrubal suffered a similar fate. The defeat was dreadful, and none escaped but the commanders, with a few attendants. Nevertheless, the Carthaginians collected a new army with wonderful rapidity; but it was equally unable to withstand the Romans. Masinissa, associated with Lælius, had again defeated Syphax, and taken him prisoner. The beautiful Sophonisbe, the daughter of Asdrubal, by whom Syphax had been gained over to Carthage, Masinissa longed to marry. Fearing the effect of her charms, Scipio commanded her to be brought to the camp as a Roman prisoner. To avert such a disgrace, the king persuaded her to swallow poison. An armistice was now brought about between the Romans and their enemies; but the latter violated it. Hannibal had returned from Italy, to save his country, if possible; but he had now only the wreck of his once formidable army. His spies, who fell into the hands of the Romans, Scipio ordered to be led through all parts of the Roman camp, and then suffered them to return. Hannibal wished for an interview with the Roman commander; and not far from Zama, the two greatest generals of their time met (B. C. 202). They approached each other, for the first time, in the presence of their respective armies. For a long time they gazed upon each other in silence; then Hannibal advised a peace, and spoke of the fickleness of fortune. Scipio required of the Carthaginians unconditional submission; Hannibal promised to give up all the foreign possessions. This was not satisfactory to the Roman; and the generals separated and prepared for an engagement. The two armies fought with ardour; but their strength was unequal. Scipio had an excellent and well-disciplined infantry, and the numerous and valiant cavalry of Masinissa. Hannibal's troops, on the contrary, were mostly raw soldiers, or mercenaries. These fled at the first onset, and the veterans alone defended themselves with firmness. Their general stood by their side, as usual, to encourage their exertions. The Romans assailed them in vain, till Masinissa and Lælius attacked them in the rear. They now gave way, and nearly all fell victims to their perseverance. Hannibal scarcely succeeded in saving himself. He now advised a peace, which was granted on very hard conditions. Scipio's return through Italy to Rome resembled a triumphal procession; every one was eager to see the conqueror. At the gate of the city he received the congratulations of his fellow-citizens; and then followed the most magnificent triumph which Rome had ever witnessed. The spoils were immense. One hundred and twenty thousand pounds of silver were carried in the procession, to be deposited in the public treasury. The columns which the Romans proposed to erect in honour of Scipio he declined, but received the surname of *Africanus*. After this, he discharged, in a praiseworthy manner, the office of censor; but he lost the favour of the people, because he defended with zeal the pretensions of the senate. Afterwards he became his brother's lieutenant, when the war broke out with Antiochus, king of Syria, and went to Greece, and thence to Asia. Here he had the misfortune to see his only son fall into the hands of the enemy. As Antiochus wished for peace, he sent ambassadors to the Roman commanders, and promised the afflicted father that his son should be restored without a ransom. Scipio declared that he accepted their offer with gratitude, but warned the envoys not to imagine that he could be thus bribed to violate his duty. Nothing but complete submission could purchase peace. Soon after, Scipio was taken sick, and obliged to leave the army. As soon as Antiochus heard of it, he sent back his captive son without any conditions. With tears of joy the father embraced him, and immediately sent his thanks to Antiochus, and advised him not to encounter the Romans; but his advice was neglected. Nevertheless, he procured the defeated king (B. C. 189) tolerable conditions of peace. After his return from Asia, Scipio retired into private life. Here he experienced with grief the ingratitude of his fellow-citizens. Cato the Censor, the inveterate enemy of the Scipios, by constant accusations, procured an order for Scipio to be brought before the public tribunal, to give an account of the money which he had received. He appeared, showed the people his accounts, and then tore them in pieces in their sight. "This is the day," he exclaimed with a firm voice and a calm countenance—"This is the day when Hannibal was beaten and Carthage overcome. Why waste the time in words; the gods expect us in the capitol. Follow me, Romans, and let us offer them our thanks." The people were filled with shame, followed him directly, and left the accusers in the forum alone. Notwithstanding this, Scipio was summoned before the tribunal a second time by his enemies. He did not appear, but left the ungrateful city, and retired to his villa at Linternum. As he was still persecuted, and his rural quiet disturbed, Tiberius Gracchus, the eloquent tribune of the people, at length undertook his defence, and showed the Romans the baseness and injustice of their conduct. The persecutions now ceased; but Scipio soon fell sick, and died in his retirement. He told his wife to have these words engraved upon his monument: "Ungrateful country, thou shalt never possess my bones." He died three years after he had left Rome, in the year of the city 571 (B. C. 183). The same year, Hannibal, the most dangerous enemy of the Romans, died in Bithynia.

SCIPIO, Publius Æmilianus, surnamed Africanus the younger, son of the famous Paulus Æmilius, who conquered the powerful Perseus, king of Macedonia, was adopted by the son of the great Scipio. He began his public career at the age of thirty, when the Roman senate was about to despatch a new army to repress the disturbances in Spain. Exasperated by the constant failure of the wars against the Spanish tribes, the people obstinately refused to serve. At this juncture, Scipio came forward, and by a spirited and powerful harangue, made such an impression on the public mind, that a multitude of Romans of all classes voluntarily enlisted. B. C. 152, he accompanied the consul, Luc. Licinius Lucullus, to Spain, as legionary tribune, and, by his disinterestedness, courage, affability, and firmness, gained the love and esteem of the army. He acquired peculiar respect by conquering a gigantic Spaniard, who had long irritated the Romans by his arrogant challenges. By his magnanimity and kindness he obtained more honourable victories over the hearts of the Spaniards. But Lucullus viewed the young hero with a jealous eye, and, in order to remove him from the army, commissioned him to obtain elephants from Masinissa, in Africa. He was entertained by the king with the greatest distinction, fully accomplished the object of his mission, and returned to Spain. A few years after this, he went to Africa a second time, at the commencement of the third Punic war, in the year of Rome 605; B. C. 149. He served under the consul M. Manlius Nepos, and, by his courage and vigilance, rendered important services to the cause of the Romans. When, owing to the negligence of the consul, the Carthaginians, in this campaign, suddenly fell upon the camp, Scipio saved the army from destruction by coming unexpectedly upon the rear of the enemy, and forcing them to retire. A short time subsequent to this event, the same imprudent consul attacked Asdrubal in a position unfavourable for the Romans, and was obliged to retreat. Hotly pursued by the enemy, he would have suffered a great loss, had not Scipio confronted the pursuers with a body of 300 horse, and kept them in check till the rest of the troops had passed over the river. But a few hundred of the Roman foot-soldiers were still behind. No sooner had Scipio perceived their condition, than he hastened over the river with a detachment of cavalry, took possession of a piece of rising ground, attacked the enemy, and thus enabled the Romans to escape with only a trifling loss. He returned in triumph to the Roman camp, crowned by the grateful soldiers, who owed to him their safety, with a wreath of grass, woven on the place where they were rescued. By this proof of courage and conduct, Scipio gained universal esteem and admiration. Even the severe Cato was loud in his praise, and prophesied at his death, that by him alone could the proud rival of Rome, Carthage, be destroyed. Manlius, his commander, could not forbear to recommend the young hero, in the most emphatic manner, to the senate. Hence, the next year, contrary to the usual custom, he was unanimously chosen consul, and leader of the forces against the Carthaginians. Accompanied by Lælius, the worthy son of the Lælius renowned in the second Punic war, who was the intimate friend of the elder Scipio, and by Polybius, the Greek historian, he went a second time into a hostile country. Directly after his arrival, he rescued a large body of Roman soldiers, who were surrounded, and whose destruction appeared certain. Having beaten and driven back the hostile armies, he began to make serious preparations to reduce the city, which was extremely strong, and laboured to cut off all the supplies of troops and provisions, both by land and sea. But his design was frustrated by the desperate efforts of the besieged. With incredible activity, the Carthaginians excavated a new harbour, and thus opened a connexion with the troops collected without the city. And, strange as it may seem, a new fleet of fifty ships was built, which violently attacked the fleet of the Romans; and, after a protracted and stubborn contest the Romans gained no decisive victory. An attempt which they made to storm an important rampart near the city, totally failed, as the enemy, swimming through the intervening water, set fire to the Roman machinery, and repelled the Romans themselves with fire-brands. Some time after, indeed, the consul made himself master of this rampart, and kept possession of it; but he was unable to take the city that year, and the approach of winter put a stop to military operations. The next season, he attacked the hostile army, which was strongly intrenched, with a superior force, conquered and destroyed them. He then advanced against the city, and, after twenty days, the genius of the general, and the perseverance of the devoted troops effected the reduction of Carthage (q. v.) B. C. 146. Lælius, the valiant friend of Scipio, first ascended the walls of the city with his soldiers. With unparalleled fury the Carthaginians resisted the Romans, even after they had entered the city; and much blood was spilt before the conquerors could fully reduce it. By the express command of the Roman senate, this rival of Rome, once so powerful, was demolished and burnt. This spectacle affected Scipio to tears. He was honoured with a magnificent triumph at Rome, after the war was terminated, and was surnamed the *younger Africanus*. After he had lived for some time as a private citizen, he was sent with other ambassadors to Egypt, to king Ptolemy Euergetes, where he was much admired for his genuine Roman moderation, and his noble thirst for knowledge. When he returned (B. C. 142) he was elected censor. In this office he frequently urged the degenerate Romans to return to the simplicity and frugality of their fathers; he even punished severely some respectable citizens for their extravagance. B. C. 134, he entered on his second consulship, in order to put an end to the war which had long been carried on with Numantia, a bravely defended city in Spain. On his arrival in the enemy's country, his first labour was to reduce the disorderly, enervated troops to their former state of discipline. But before he could effect this, the year was gone, and Numantia still untaken. His term of command was therefore prolonged. Reinforced by troops and elephants, which were brought to him from Numidia by the young Jugurtha, afterwards the dangerous enemy of the Romans, he commenced the siege with great energy. For his conquest of this powerful city, a triumph was decreed to Scipio, and he received the surname of *Numantinus*. He suffered like the elder Africanus, in the last years of his life, from the ingratitude of his countrymen, and made himself many enemies among the people by opposing the agrarian law. (See the article *Agrarian Laws.*) He retired, therefore, with Lælius, his constant friend, to an estate near Naples, and lived in tranquillity. But having returned to the city, and become suspected of aspiring to the dictatorship, he was found one morning dead in his bed, with marks of having been strangled. It was generally believed that his wife, Sempronia, a sister of the Gracchi, who were the ardent supporters of the agrarian law, had a share in the deed. Papirius Carbo, and C. Gracchus, the tribunes of the people, were likewise bitter enemies of his. After Scipio's death, there was found in his house only two and a half pounds of gold, and less than thirty-two of silver, so great had been his liberality and moderation. He died B. C. 129, at the age of fifty-six years. All the Romans, who knew his great virtues, lamented his death. Like the elder Scipio Africanus, he was a Roman of the highest stamp; he united courage with magnanimity, wisdom with humility, patriotism with moderation and forecast, and benevolence with unshaken probity.

SCIRE FACIAS; a judicial writ, most commonly used to call a man to show cause to the court, whence it issues, why execution of judgment passed should not be made out.

SCIRON; a celebrated robber in Attica, who plundered the inhabitants of the country, and kicked them from the rocks into the sea while washing his feet. Theseus attacked him, and treated him as he treated travellers. According to Ovid, the earth, as well as the sea, refused to receive the bones of Sciron, which remained for some time suspended in the air, till they were changed into large rocks, called *Scironia Saxa*, situated between Megara and Corinth. Bottiger thinks he was the same as Procrustes (q. v.), and Sinis, or Scinis.

SCIRPUS; an old Latin name for the bulrush and other plants of that tribe, which, on account of their soft flexible stems, destitute of knots, are useful for tying things together or for making baskets. It is a very numerous genus. The common bulrush is frequent in clear waters, and about the borders of rivers throughout Europe; also in North America and New South Wales. The roots are thick and stout, creeping under water in the deep mud; stems four or five feet, or more, in height; naked, smooth, round, dark green, tough, and pliant, spongy within, useful for packing and thatching, and especially for platting into the bottom of chairs, their base inverted with several sheathing scales, partly ending in leafy points.

SCIRRHUS; a hard tumor in any part of the body, generally proceeding from the induration of a gland, and frequently terminating in a cancer.

SCISSORS. See *Cutlery*.

SCLAVONIA, a kingdom under the government of the emperor of Austria, is bounded on the west by Croatia, and separated, on the three other sides, by the Drave, Save and Danube, from Hungary, Servia and Bosnia. Under the Romans, it formed a part of Pannonia. It derives its present name from the Sclavi, who settled there in the seventh century. In the tenth century, it came under the dominion of Hungary, and, in 1526, under that of the Turks; but was subjected to the house of Austria by the peace of Carlowitz, in 1699. It contains 6530 square miles, and is traversed from one extremity to the other by a chain of mountains which rise in Croatia, and run from the west to the east. It abounds in forests, which is the cause that the climate is cooler than might be expected in this latitude. In fertility of soil, Sclavonia is equal to Hungary, with the exception of the mountainous districts. Its productions are, besides poultry and the common domestic animals, venison, fish, bees, a great quantity of silk, corn (although agriculture is still very backward), melons, tobacco, and an abundance of wine. Fruit is produced in great abundance, particularly plums, of which brandy is made, and a great quantity of nuts: both articles are exported largely, particularly the plums, which form a principal article of consumption and trade. There are, likewise, considerable forests of oaks, which are used for tanning; and likewise forests of chestnuts. The mountains, most probably, contain minerals; but there is no mining carried on. Mineral springs are abundant; coals have likewise been found. The inhabitants (528,000) belong, for the most part, to the Sclavonian stock: but there are likewise many Magyars, Walachians, Gypsies, Germans, Greeks, Jews, and Armenians. The Roman Catholic, the Greek Catholic, and the Greek non-united church, are the most numerous religious denominations. There are but few Protestants. Manufactures are almost entirely unknown amongst the inhabitants. Until 1745, the country was only divided into military districts, but since that time a beginning has been made towards giving some of them a civilized constitution. These form three counties. The military district, or generalate, consists of Brod, Peterwaradin, and Gradisca. It is under a military government, at the head of which is the commanding general in Sclavonia, who resides at Peterwaradin. The counties are subject to the kingdom of Hungary, and each has its governor and vice-governor. Most of the citizens of the towns, as also the peasants, are bondsmen. Many of the proprietors of estates possess domains containing from 84 to 335 square miles.

SCLAVONIANS (from *slava*, fame); one of the two European families of nations which have retained their original character. Later than the Germans, the Sarmatians emigrated from Asia to Europe. From them descended, according to Ptolemy, the Wends, who extended themselves, in the fourth century, into the great plains along the Vistula, and contended with the Goths in the neighbourhood. Jornandes, an author of the sixth century, says, that the Wends were divided into several branches, of which the most general names were *Sclavini* and *Antes*. Hence he distinguishes three tribes of one stock, by the names of *Veneti*, *Antes*, and *Sclavi*. The name of the chief branch, *Wends*, remained peculiar to the nations which afterwards inundated the north-eastern countries of Germany; the Sclavonians occupied the country between the southern bank of the Vistula and the Dniester; the Antes between the Dniester and the Dnieper. The irruption of the Huns into Europe freed them from the yoke of the Goths, and the death of Attila from that of the Huns. They were afterwards urged by the same impulse which impelled the German tribes to the south and west, while at the same time Scythian or Mongolian-Tartar hordes came down upon them, almost uninterruptedly, from the Wolga and the Caucasus, and drove them from the northern banks of the Black sea, some to the north, and others to the west. In the sixth century, the Wends, strictly so called (afterwards the Northern Sclavonians), took possession of the regions on the Elbe, which had been deserted by the Goths and Suevi, while the proper or eastern Sclavonians occupied the banks of the Danube to the Norican and Julian Alps. But the two tribes intermingled, and there arose two great Wendish Sclavonian unions; that in Great Croatia (East Bohemia, Silesia, and Lodomiria), and that in Great Servia (Misnia, West Bohemia, and Moravia). Under the yoke of the Franks and the Avars, they split into various bodies which were united, about 623, by Samo, the Frank, into a powerful empire; but after his death, it again fell to pieces, and formed numerous waywodeships, from which arose new national names before the end of the sixth century. All this rests only on tradition. In the eighth century, St Boniface led some Sclavonic tribes into the vicinity of Fulda, Bamberg, Würzburg, and Bayreuth. In Bohemia reigned Libussa, the founder of Prague, about 722, and Przemisl, first duke of the Bohemians, afterward called Czechen. The tribe of the Liaches (probably a branch of the Antes) retired from the eastern shore of the Danube to the Vistula, and, under the name of *Polijanes*, diffused themselves abroad in modern Poland. Branches of this race, the Pomeranians and Lutitzians, advanced to the north-eastern part of Germany (Pomerania, Lower Lusatia). The Wilzians, a branch of the Wends, spread from the Oder through the Mark to the other side of the Elbe; and the Sorbians, after 640, settled in the territory deserted by the Hermunduri, on the Upper Elbe (the present Misnia, as far as to the Saale), and the Havel. The Obotrites, still later, became powerful in Modern Mecklenburg. The Wends contended, on the west, with the Thuringians and Franks. Charlemagne sought the alliance of some of these tribes, and conquered others. In the war with the Avars, he subdued the southern Sclavonic territories, Carinthia, Stiria, and Carniola, where he and later emperors founded German Margraviates. (See *Austria.*) The Northern Wends were subsequently driven, by the Saxon kings of Germany, beyond the river Elbe; and in the tenth century were formed the Margraviates of Misnia, Lusatia and Brandenburg. About the same period the Antes who still remained at the mouth of the Danube, were exterminated by the irruptions of the Avars, Bulgarians, Hungarians, and others, or driven to distant lands. The name of *Antes* disappeared. Probably some of this race retired to the Dnieper and to the Wolchow. On the former they built Kiev, and on the latter Novgorod, the two Sclavonic pillars of the Russian state. (See *Russia.*) The proper Sclavi maintained their position on the northern bank of the Danube, and often invaded and devastated the Roman provinces, defended their independence against the Bulgarians and Avars, received emigrants from great Servia and Great Croatia, and, in connexion with them, founded Sclavonic settlements in Dalmatia (see *Dalmatia*, and *Illyria*), Servia, Croatia, and Sclavonia. On the fall of the kingdom of Great Moravia, at the close of the ninth century, that of the Obotrites arose (in Lauenburg, Mecklenburg, &c.), under king Gottschalk (he was assassinated in 1066), and king Henry (he died 1126), till, in the twelfth century, it was conquered, partly by Saxon dukes (see *Henry the Lion*), and partly by the Danish kings. Bohemia retained its Sclavonic line of princes, but acknowledged the sovereignty of the German emperors till 1306. Russia and Poland slowly unfolded into independent states; while on the other hand, the Sclavi on the Danube, the Sclavonians, the Bosnians, and Croatians, were never powerful, but almost always in subjection to the adjacent nations—the Greeks, Hungarians, Venetians, and Turks.

Meanwhile, centuries of emigration and war had transformed the democratic governments of the Wendish (Sclavonic) tribes into limited monarchies. Their first princes were the oldest members of the tribe; afterwards the leaders of their armies, styled *gospodin*, or *hospodar*, *knees*, *waywode*, *ban*, *kral*, &c. The heathen priests exercised a great authority over the rulers, and the high priests at Arcon on the island of Rügen, governed all the Wendish tribes. The principle deity of the Sclavonians was called *Bog*, and his wife *Siwa*. They also worshipped good spirits (*Belbog*) and evil spirits (*Czernebog*). Almost every village had its divinity. At Rügen, Swantewit was chiefly revered; the Obotrites worshipped Radegast; the Havlers, Herowit. Among the Apostles of the Sclavonians, in the ninth century, Cyril and Methodius are worthy of notice. As the kings of the Sclavonians were hereditary monarchs, and all the nobles might be said to participate in the government, the common people became, gradually, more and more oppressed, and sunk, at length, into complete slavery. They remained, after a dreadful war, in the same condition under their German conquerors, who forcibly introduced Christianity among them in the tenth and eleventh centuries. After the fall of Henry the Lion, however, in 1180, some Wendish princes succeeded in holding their lands as immediate vassals of the emperor. Pribislaw, the son of Niklot, the last Wendish king of the Obotrites, assumed the title of prince of Mecklenburg, from the ancient capital of his country; and his posterity still reign in Schwerin and Strelitz. Thus the family of Niklot, in Mecklenburg, is the only Sclavonic (Wendish) house of princes remaining in Europe. Bogeslaw and Casimir maintained themselves as princes of the empire in the duchies of Pomerania, from the Oder to the Vistula. In Pomerania Proper, the Wendish house of princes, notwithstanding many divisions, did not become extinct till 1637. German colonists settled in the Wendish territories which were depopulated by war; and thus their language and manners, in a great measure, disappeared (partially as early as the fifteenth century, e. g. on Rugen;) but bondage still remains. The old Wendish stock, however, has maintained its existence in several parts of Eastern Germany, as in Lusatia and Altenburg. Since the fall of the Wendish empire, the name of Sclavonians has become more general. The inhabitants of Poland, Galicia, Russia, Bohemia, Moravia, Sclavonia, Servia, Bosnia, Croatia, Illyria, and Dalmatia, are still, in a great measure, Sclavonians. The whole number of them is estimated at 50,000,000. Five millions of these belong to the southern Sclavonians; and their dialect is called *Illyrian*, or *Servian*. The Servians (Rascians) are, next to the Czeches, the most civilized and powerful of all the southern Sclavonians, zealous friends of the Greek church, and brave defenders of their rights. Surowiecki describes the Sclavonians, as a nation employed wholly in agriculture and the raising of cattle, and who fight only in self-defence. The Sclavonians, in general, are courageous, lively, and hospitable, attached to their national manners and national fame. Though fond of spirituous liquors, they are diligent and intelligent; but in mental cultivation they have remained, with the exception of the Bohemians and the Ragusans in the middle ages, behind the Germans, because they are scattered over a wide extent of country, and have comparatively little intercourse with other nations, are engaged in frequent wars, and have unfavourable institutions of government. The Sclavonic government has been at all times a republican oligarchy. The different tribes were subject to chieftains (called *zupany* and *woiwody*) and independent of one another. In no Sclavonic territory have feudal laws bound the inferior lords of the soil; no where has the right of property given industry and prosperity to the great body of cultivators who have remained always vassals; no where has the Roman code, or the civilization of the West, become deeply rooted; for the Germans, on whom the Sclavonians bordered, were the objects of their mortal hatred, being always hostile neighbours, and often their oppressors. There were some cities of Sclavonic origin, which carried on an active trade; as Novgorod, Kiev, Pleskow, in Russia (Dantzic, in Pomerelia, was of Danish origin; and the existence of Wineta, the splendid commercial city of the Wends, which was situated in Pomerania, on the river Divenow, near Wollin, was destroyed by the Danes, and then sunk in the sea, is extremely doubtful, according to Gebhardi's History of the Wendish-Sclavonic states); but no one of those cities had a long duration. Julin (now Wollin), in the tenth, eleventh, and twelfth centuries, was a rich and populous mart, till, in the last part of the twelfth century, it was demolished by the Danes. Ragusa, the only Sclavonic republic, maintained its existence more than 1100 years—from 656 to 1806. It was, moreover, the first nurse of Sclavonic literature. With regard to the older history of this nation, we refer the curious to Surowiecki's valuable work, On the History of the Sclavonic Tribes (in the Polish language, Warsaw, 1824), where the author shows from Procopius, Jornandes and Sidonius, that the Sclavonians are the same with the Veneti.

Sclavonic Languages. The Sclavonic language, which, both in its roots and the words formed from them, bears a strong resemblance to the Greek, Latin, and Teutonic, is spoken by more than sixty nations, from the countries on the east of the Adriatic sea, to the shores of the Icy ocean, and from the Elbe to the Russian islands of the Pacific. In all of the Sclavonic dialects appear traces of an early, though imperfect, civilization, to which the race had attained in its primitive seats. The Sclavonians are thus shown to have been acquainted, not only with agriculture and mining, but with navigation; and the civilization of the whole people was promoted by the intercourse which subsisted between the different cities. The origin of the Sclavonic language must be looked for in India: the Devanagari (see *Indian Languages*) has fifty-six letters; the old Sclavonic alphabet consists of forty-six; the Bohemian of forty-two. The religious rites of the Sclavonians resembled those of the Hindoos, and their women, like those of the latter, were accustomed to burn themselves on the funeral pile of their husbands. The Sclavonic has even yet preserved many roots of Indian origin. The Croatian traveller Brezowski declares that he was able to understand the Hindoos as far as to Cochin-China, and to render himself intelligible to them. The Sclavonians are divided by their dialect into two great classes. To the first belong the Russians, Illyrians, Montenegrins, Bulgarians, Servians, Bosnians, Dalmatians, Croatians, and the Wends in Carniola, Carinthia, Stiria, and in the county of Eisenburg. To the second belong the Bohemians (Czechen, or Tschechen), Moravians, the Slowacs of Hungary (about 4,000,000), the Upper and Lower Lusatians, the Poles, and Silesians. It is a disadvantage to Sclavonic literature, that no single dialect has prevailed as the literary language; and that, owing to the great extent of country over which the Sclavonic race has spread, and the diversity of its political and religious institutions, several dialects have become written languages. It is remarkable that the Sclavonians have preserved their national character, and have flourished to such a degree, when we reflect that they have been the first to suffer from the storms which have broke over Europe, from invading hordes of barbarians. They were exposed to the first fury, not only of the Teutonic nations, but also of the Tartars, Huns, and Turks. The Sclavonians of Prussia, Brandenburg, Pomerania, Saxony, Altenburg, Misnia, and Silesia, yielded up their nationality only after a long struggle, and in consequence of the severest measures. Thus Frederic of Brandenburg prohibited the teaching of the Sclavonic language under pain of death, and introduced the German by force. The Lusatians still preserve their language and manners. According to Dobrowsky, the primitive Sclavonic is extinct. It was divided into two chief dialects—the Antian, or that of the Antes, or eastern Sclavonians; and that of the western Sclavonians, or the Sclavian. To the Antian stock belong, according to this author, three branches: the Russian (divided into the Great Russian and the Little Russian), the Servian and Croatian; and to the Sclavian, the three branches of the Bohemian, the Servian, and the Polish. In general, the Sclavonic is less completely developed than the other European literary languages; but the Sclavonians were the first of the European races to translate the Bible into their mother tongue. The Russian and Polish languages comprise literatures of considerable value and extent. (See *Russian Language and Literature*, and *Polish Language and Literature*, under the heads *Russia* and *Poland*.) The Servian or Illyrian language has recently received new cultivation. The Sclavonic dialects of Bosnia and Bulgaria differ little from the Servian. The Carinthian, or Wendish dialect, and the Slowac in Moravia, are nearly related to the Bohemian. The Wendish, in Lusatia, is a mixture of Polish and Bohemian; but in Lower Lusatia it is very different from those and from the Servian. The Bohemian has reached a high degree of cultivation. Prague is the central point of the literature. (See *Bohemian Language and Literature*.) In Schaffarick's History of the Sclavonic Language and Literature, according to its dialects (Buda, 1826), the author adopts the following division: *A.* The South-Eastern Sclavonic, comprising first, the old Sclavonic, or ecclesiastical language; second, the Russian language and literature; third, the literature and language of the Sclavo-Servians of the Greek church; fourth, the language of the Catholic Sclavo-Servians, with the literature of Ragusa; fifth, the Wendish language and literature; principal dialect, that of Lower Carniola. *B.* The North-Western Sclavonic: first, the Bohemians, or Czeches; second, Slowacs in Hungary; third Poles; fourth, the Sorbians, or Wends, in Lusatia.

SCLEROTICA, in anatomy; one of the tunics, or coats of the eye. See *Eye.*

SCOMBER. See *Mackerel.*

SCONE; a village of Scotland, a little above Perth, on the Tay. It was formerly the residence of the Scottish kings, the place of their coronation, and the scene of many historical events. There was formerly an abbey here. The remains of the palace are now incorporated with the mansion of the earl of Mansfield.

SCORPION (*scorpio*) a formidable insect, allied to the spider, but differing essentially in form. The body is elongated, and terminates abruptly in a jointed tail, armed at the extremity with a curved and very acute spine: under the point of this spine are two small orifices, which serve to give passage to a poisonous fluid. The anterior pair of feet, or *palpi*, are very large, resembling those of the lobster in form, and serve to seize and bear to the mouth of the animal the various insects on which it feeds: the other feet do not differ essentially in form from those of the spider. At the junction of the thorax and abdomen, are two movable plates, having the form of combs, the use of which is not well understood. Several species of scorpion are known, all inhabiting the warmer parts of the globe. They shun moisture, living on the ground in places exposed to a hot sun, and hiding under stones, or in crevices, and, when disturbed, run, rapidly, with their tails curved over their backs. The species of the south of Europe are little more than an inch in length, while some of the tropical species exceed five inches. The sting of the larger ones is very much dreaded, and is said frequently to cause death. In some places, they are so numerous as to become a constant object of apprehension to the inhabitants, and even force them to abandon their habitations. The scorpions may be divided into two sections, viz. those with eight eyes, and those which have only six.

SCOTIA, NOVA. See *Nova Scotia.*

SCOTISTS. See *Duns,* and *Scholastics.*

SCOTLAND; the northern division of the island of Great Britain; is bounded on the south-east by England, (from which it is separated by a line drawn from Berwick along the Tweed and the Cheviot hills, to the Solway frith), and on every other side by vast and stormy seas; on the west by the Atlantic, on the north by the Northern, or Deu-Caledonian sea, and on the east by the German ocean. Excluding its islands, it lies between the latitudes of 54° 40′ and 58° 40′, and longitudes 1° 47′ and 6° 7′ west. Its extreme length, from the Mull of Galloway to Dunnet Head, is 284 miles; its breadth varies greatly, as, in the north, it is only 71 miles between Assynt and Nosshead, and in the south, 134 between St Abb's Head and the point of Knapp. Its territorial surface is about 26,286 English square miles, of which about 290 are fresh water lakes. Including its islands, the extreme latitude of Scotland reaches to 61° 13′, and the extreme longitude west to 8° 18′. The area of the islands is computed at 3212 square miles, so that the total land of Scotland amounts to 29,498 square miles, exclusive of the water.

History.—The history of Scotland may appropriately be divided into five periods. I. From the earliest glimpses of history to the union of the Scots and Picts, under Kenneth the Second, A. D. 843. II. From Kenneth's reign to the death of Alexander the Third, A. D. 1286. III. From Alexander's death to that of James the Fifth, A. D. 1542. IV. From James the Fifth's death to the accession of James the Sixth to the throne of England, A. D. 1603. V. From James' accession to the Union of the two kingdoms, A. D. 1707. The adoption of these periods may seem to be somewhat arbitrary, yet, on consideration, it is presumed each will be found to constitute, in some measure, a characteristic epoch.

I. *Early History, to the reign of Kenneth II.,* A. D. 843.—Before the Christian era, the aborigines of the island of Britain are supposed to have been supplanted by the Celts, who occupied a large portion of the west of Europe. These Celts consisted originally of two vast divisions, namely, the *Gael,* or *Gaul,* who were the ancient inhabitants of all Gaul, and the *Cumri,* or *Cimbri,* who held all Germany. The south parts of Britain, it is supposed, were first peopled by Gael from Gaul, and the north part of Britain, by Cumri, from Jutland. About two hundred years before Christ, the Cumri of Scotland were expelled or supplanted by a Gothic race from Scandinavia, called *Picts* or *Caledonians.* They were driven by the Picts beyond the friths of Forth and Clyde, but till a later period contrived to keep possession of a portion of Clydesdale and Galloway. These Cumri were of the same stock with the Welsh Celts, who passed from the opposite coast of Germany, and forced the Gael, the then inhabitants of England, to seek refuge in Ireland.

There has been much dispute among antiquaries whether, in the first place, the Picts and Caledonians were the same race, and whether, secondly, they were of Gothic origin; but, according to the best authorities, both these points have been very satisfactorily demonstrated. Tacitus describes the Caledonians as being of tall stature, light hair, and blue eyes, and he deduces their Gothic origin from their appearance; the Celts being, on the other hand, a small and dark people, with black eyes and hair.

These Picts or Caledonians were they who so long and successfully resisted the invasions of the Romans. Britain had been several times visited by Roman arms, but it was not till A. D. 75, that they first penetrated into that part of the island which we now call Scotland. Under the command of Agricola, the Roman army had for several years repeated engagements with the Caledonians, until A. D. 84, when the celebrated battle of the Grampians was fought against Galgacus, in which the latter was defeated. The whole open country was abandoned to the invaders, whose progress was stayed by what they termed the Caledonian forest, under which they seem to have vaguely comprehended the vast pine woods of Glenmore and the steep barrier of the Grampians. Their military occupation is attested by the formation of numerous camps, of which that at Ardoch, ten miles north of Stirling, is the most extensive and complete. From these mountain bulwarks the Caledonians rushed down, and made their name terrible to the conquerors of the world. The Romans endeavoured to resist their incursions, by rearing, at different periods, two walls; one between the Solway and the Tyne, the other between the Forth and Clyde. The first of these walls is called the wall of Adrian, having been erected by that emperor on his visit to Britain, about A. D. 125; the second is called the wall of Antoninus, having been erected during that emperor's reign, about 140. The total length of the latter, which extended from Carron on the Forth to Dunglass on the Clyde, was 63,980 yards, and it was defended by nineteen forts. The whole extent of territory that lay between the walls of Adrian and Antoninus, was every where intersected by Roman roads. But it is doubtful whether the country between the northern wall and the Murray firth was formally erected into a Roman province; though it was traversed by roads of communication, and overawed by military stations. The Romans, finding their conquests in Caledonia burdensome, began to contract the lines of the empire; and, during the reign of the emperor Aurelian, evacuated the military stations beyond the wall of Antoninus. In A. D. 209, the emperor Severus embarked for Britain, attended by his two sons and a formidable army. Upon his arrival, he repaired or rebuilt the wall of Adrian, in order to protect his retreat, in case of accidents. He speedily passed the northern wall, and penetrated into the country of the Caledonians. Unable to oppose the obstinate attack of the Romans, the fugitive Caledonians were compelled to sue for peace, and to surrender a part of their arms and a considerable portion of their territory. The emperor then retired beyond the wall of Adrian, but the barbarians, regardless of the obligations of a treaty, renewed hostilities, in consequence of which Severus sent another army into their country, under his son Caracalla, with orders to extirpate them. Upon the death of Severus, however, Caracalla concluded a treaty with the Caledonians, by which he relinquished the territories they had recently surrendered to his father, and abandoned the forts which had been erected to enforce their submission. The wall of Antoninus was fixed as the northern boundary of the Romans. For about a century after this period, the Caledonian tribes remained quiet. The long residence of the Romans in the island had improved the rude manners of the inhabitants, taught them to desire and cultivate the conveniences of life, and reconciled them to their language and manners.

The emperor Constantinus, in the year 306, found it necessary to repair to Britain in person, to repel the attacks of the Caledonians. The Romans were successful, but their general died at York.

After the appointment and recall of Severus, and of Jovian, as commanders of the Roman troops in the British island, Theodosius was sent to Britain, in 367, to restore tranquillity to a very disturbed people. He restored, in the two campaigns of 368 and 369, the tranquillity of Britain, by suppressing domestic insurrection, and by repelling foreign invasion; the thirty years' quiet of Britain which ensued, bears testimony to the vigour of his arms and the efficacy of his wisdom.

During the year 398, when the Roman empire was attacked without by the surrounding tribes, and enfeebled within by domestic parties, the Scots from Ireland, and the Picts from Caledonia, renewed their depredations on the British provincials. Stilicho, who supported a falling empire by the strength of his talents, sent such effectual aid, as enabled the governors to repel the invaders, to repair the northern wall and to restore general quiet.

The Romans finally abandoned the island in the year 446, leaving the inhabitants of the more southern parts a prey to the attacks of the more warlike Caledonians. The former addressed a letter of supplication to Rome, beseeching assistance. "The barbarians," said they, "chase us into the sea; the sea throws us back on the barbarians; and we have only the hard choice left us of perishing by the sword or by the waves." The Romans, however, by this time, struggling for their own existence, were unable to render succour, and the Britons were forced to invite Saxons to their assistance, who served to check the future inroads of the Picts.

From the retirement of the Romans in 446 to 843 A. D., the Picts formed the main and most powerful people who inhabited Scotland, and the annals of Pictland, or Caledonia, are the only real annals of ancient Scottish history. Much obscurity, however, necessarily attaches itself to a period so remote and barbarous. The first Pictish monarch of whom authentic information exists, was Drust, the son of Erk, who for a long period rendered himself terrible to the Romanised Britons. In the annals of Pictland a list of the monarchs who succeeded him is given, to the amount of thirty-eight, but as these consist merely of a succession of barbarous names, without any corresponding information, it is unnecessary to repeat them here. About the end of the seventh century, Elfrid, Prince of Northumbria, attacked the Picts. Having crossed the Forth and the Tay, he advanced into Angus as far as Dunnichen, where he received a total defeat. Few of the Saxons escaped, and so complete was their overthrow, that the Tweed, for a short time, became the northern boundary of their principality. The Picts were tempted by their success to make an irruption into Northumberland, but they sustained a defeat, and Bridei, their king, was slain.

The country of the Picts appears to have acquired different names, in successive periods. The mountainous part of it was denominated, by the first colonists, in their native speech *Alban*, the *superior height*. This name, which was originally applied to the hilly region that forms the west of Perth and the north-west of Argyle, was, in after times, extended to the whole country. In the first century, the British term *Celyddon*, (hence Caledonia) which literally signified the *coverts*, was applied by the Roman authors to the whole country on the north of the friths, though the same name was confined, by the Roman geographers, to the interior highlands lying northward of Alban. Both of these well-known appellations were afterwards applied more laxly to North-Britain. The Pictish Chronicle, from the Pictish people, calls their country by the analogous word, *Pictavia*. The annals of Ulster generally speak of this country by the name of *Fortruin*, with a slight deviation from *Fothir*, the name of the Pictish capital. It was not till about the beginning of the eleventh century, or nearly two centuries after the union of the Scots of Dalriad and the Picts of Caledonia, that we find the names *Scoti* and *Scotia* applied to the people and country generally. The universal adoption ot the term *Scotland* from a small tribe who inhabited but a small portion of its territory, cannot be very satisfactorily accounted for, and it has caused much confusion in the early annals of the country.

During the domination of the Picts over the greater part of Scotland, there still existed within the country some tribes who for several centuries were independent of their sway, and claimed a prince or king of their own. One of the most remarkable of these was the tribe of ancient Britons, who held, what was called, the kingdom of *Strat-Clyde*. Much obscurity prevails over the history of this kingdom. It is supposed to have included our present Lanarkshire, Renfrewshire, and portions of Ayrshire and Dumbartonshire. *Alcluyd*, called afterwards *Dunbriton* and *Dunbarton*, consisting of an insulated precipitous rock, near the mouth of the Clyde, is said to have been its capital or chief fortress. During its more early history, this kingdom included within its bounds Liddesdale, Teviotdale, Dumfries-shire, and Galloway; but, the constant encroachments of the Saxons limited its ancient boundaries on the south-east, and reduced it to the size which we have already mentioned. The names of only five princes or chiefs of this little territory are mentioned in ancient annals. These are Caw, Hoel, Arthur, Rederc, and Owen or Hoen. The Arthur, here mentioned, is supposed to be the redoubtable Arthur of old British romance. Of the character of the other princes nothing is known, with the exception of Rederc, who, from his generosity, received the sirname of *the bountiful*, and who is reputed to have been the great patron and friend of Kentigern, the tutelar saint of Glasgow. As the Strat-Clyde Britons were often attacked by the Picts from the north, by the Scoto-Irish from the west, and by the Saxons from the south, their struggles to preserve their independence as a people must have been great and many. The very jealousy of their enemies may have preserved them from being swallowed up by any single one of their more powerful neighbours. It was not till about 972, that Kenneth IV. entirely subdued these Britons of Strat-Clyde, and their territory being annexed to the Pictish throne, we find no mention of the kingdom of Strat-Clyde afterwards, but the people occur in charters, &c. to a later period. Innes shows that charters to the see of Glasgow, by Malcolm IV. and William, are addressed: *Francis et Anglicis, Scotis et Galweiensibus et Walensibus, et omnibus ecclesiæ S. Kentigerni de Glasgo, et ejusdem episcopiparochianis.* The *Franci et Angli* are Normans and English, some of whom settled in the south of Scotland; the *Galweienses* are the Picts of Galloway; the *Walenses*, or Welsh, are the Britons of Strat-Clyde. In 1304, the law of the Scots and *Brets* is mentioned in an instrument quoted by Lord Hailes in his Annals. These Brets were evidently the Britons of Strat-Clyde, as all the northern writers call the Welsh *Brets* and Wales Bretland. Winton also uses *Bret* and *Bretan*, for Briton and Britain. Nay, in Clydesdale at present, if the common people are asked about any ancient castle, or the like, they will tell you it was erected by the *Pechs*, that is, by the Picts. On their final defeat, the Stratclyde Britons are said to have fled to Wales. The language of that part of Scotland which constituted the kingdom of Strat-Clyde, still retains some words common to Wales.

Another small kingdom, which existed for several centuries in Scotland independent of the Picts, and the name of whose people came ultimately to be bestowed on the whole country, was the kingdom of *Dalriad*, situated in our present Argyleshire. In the early centuries of Christianity, there existed in Ireland a Celtic tribe, who were denominated *Scoti* or *Scots*, and from them the island of Ireland itself often received the appellation of Scotland. A portion of this tribe, distinguished by the name of Dalriadi, having been defeated by a rival tribe, effected a settlement in Argyleshire under Fergus, in A. D. 503. Scots from Ireland, long before this, appear to have visited this country on warlike expeditions; but this was the first colony which permanently established themselves here. They were not numerous at first, but they rapidly multiplied, as they were soon joined by kindred tribes. In the eighth century, a civil war desolated the British kingdom, and the Scots taking advantage of these civil discords, harrassed the enfeebled Picts. At length Kenneth the Second, king of the Dalriads or Scots, secured his accession to the Pictish throne, and united into one kingdom the whole country north of the wall of Antoninus. How the name of Picts however, came to be lost in that of Scots, has never been quite satisfactorily demonstrated. By one class of historians, the Picts are represented to have been totally overthrown and extirpated by the Scots; but the more probable view of the matter is, that Kenneth, king of the Scots, either by descent or success in war, came into possession of the regal government of Pictland, and that, in the course of time, the name *Scots* came to be applied to the inhabitants of the country generally over which he and his successors ruled.

II. *From Kenneth II. to the death of Alexander III.*—The history of Scotland, as a kingdom, properly commences with the reign of Kenneth, A. D. 836. About that period the union of the Picts and Scots took place; the ancient Britons of Strathclyde were amalgamated with both; the Lothians and more southern portions of the country were annexed to the kingdom; and one monarch began to sway that portion of territory in the island, which is still comprehended under the term *Scotland*, but which before that time had formed several principal cities and kingdoms. Before the union of these states or tribes under one king, and indeed for about two centuries later, our knowledge of the country is extremely limited, any glimpses of history respecting it which have reached us being slight, unsatisfactory, and sometimes conflicting.

The reigns of Kenneth's immediate successors were chiefly distinguished by bloody feuds and conflicts between rival chieftains, and by repeated invasions of the Danes, at that time a piratical people, who infested the whole north of Europe. Malcolm the III., surnamed Caen-more or Great head, with whom well authenticated Scottish history is generally considered to begin, was crowned at Scone, in 1057. He succeeded Macbeth, who had slain his father, Duncan, and usurped the Scottish throne. The conquest of England by William of Normandy, involved Malcolm, who espoused the cause of the Saxons, in many fierce wars. Edgar Atheling, the heir of the Saxon line, and many of the Saxon nobles, sought refuge in Scotland. Malcolm married Margaret, the sister of the fugitive prince, who is said to have introduced a degree of refinement into her court remarkable for that time, and to have contributed to soften the rude manners of the people. Malcolm twice invaded England with success; but William, having collected a great army, in his turn invaded Scotland, and compelled Malcolm to do homage for those lands which he held within what was accounted the English territory. This was an ancient feudal practice, common at the period. William himself, while he was independent sovereign of England, did homage to the king of France for his possessions in Normandy. In later times, however, the kings of England, to justify their aggressions upon Scotland, affirmed, that the homage paid by the Scottish kings was not only for the provinces which they at the time possessed in England, but also for the kingdom of Scotland. But the Scottish kings, while they rendered the homage demanded for their possessions in England, uniformly disavowed that they were subject to any claim of homage on account of the *kingdom* of Scotland. This question was the ostensible cause of many bloody wars; and even so far down as the Union between the two nations, it was revived by some English writers, who endeavoured to depreciate the claims of Scotland, by disputing its ancient independency. These writers were triumphantly answered on the other side; and to all impartial minds it appeared that, whatever might be the extent of the feudal tenure, nothing could be more paltry than to draw from such an obsolete deed a claim against a kingdom, which had been *de facto* so long independent, and which had so nobly maintained its independence in a hundred battles.

Malcolm Caenmore, and his eldest son, were slain in attempting to take the castle of Alnwick, A. D. 1093. Though he left male heirs yet his throne was usurped, first by Donald Bane, and afterwards by Duncan, his natural son. By the interposition of the king of England, however, Edgar, lawful son of Malcolm, was placed upon the Scottish throne. After a reign of no great length, and distinguished by no remarkable event, Edgar died in 1107, and was succeeded by Alexander, a prince who rendered himself chiefly remarkable by his severe administration of justice. A conspiracy formed against the life of the king was dissipated by the vigour of his measures; and after assisting Henry I. of England in a war with the Welsh, he died in 1124. Having left behind him no issue, Alexander was succeeded by David his younger brother, commonly called *St David*, on account of his great piety and excessive liberality to the church and clergy. David interested himself in the affairs of England, espousing the cause of Maud against Stephen. In several engagements he was successful, but was in others defeated; and found himself unable effectually to support the cause which he had undertaken. He died in 1153, and was succeeded by Malcolm IV. a prince of a weak body, and no less feeble mind, who distinguished himself only by his continence; and, in 1165, left his crown to his brother William. This prince, in the beginning of his reign, recovered from Henry of England, the earldom of Northumberland, which had been relinquished by Malcolm; but afterwards leading an army into England, and conducting himself with too little caution, he was made prisoner by surprise, and detained in captivity, till, in order to regain his liberty, he consented to declare himself a vassal of England, and to do homage for his whole kingdom. Richard Cœur de Lion, however, who succeeded Henry, remitted the oppressive terms, and declared Scotland to be an independent kingdom: a measure to which he was induced, partly by the injustice of the claim itself, and partly by his wish of rendering the Scots his friends, during an expedition which he was about to undertake into Palestine. William showed his gratitude for the restoration of his independence, by continuing a faithful ally of the English, till his death in 1214.

Alexander II. who succeeded his father, took the side of the English barons, in their contentions with John, their feeble and imprudent monarch. He was a wise and good prince, and maintained with steadiness and spirit the independency of his crown abroad, and the authority of his government at home. He died in the small isle of Kerrara, A. D. 1249, in the fifty-first year of his age and thirty-fifth of his reign, and was succeeded by his only son, of the same name, a child in the eighth year of his age.

Alexander III. was crowned at Scone, 13th July, 1249. He had been betrothed, when an infant, to the princess Margaret of England. Their nuptials were celebrated at York in 1251, and Alexander did homage to Henry for his English possessions. The latter insidiously demanded homage for the kingdom of Scotland, but the prince replied with spirit, that he had been invited to York to marry the princess of England, not to treat of state affairs, and that he would not take so important a step without the concurrence of the national council. One of the principal events of Alexander's reign was the Battle of Largs. Haco, king of Norway, having collected a fleet of one hundred and sixty ships, sailed towards Scotland with a numerous army, A. D. 1263, with a view to recover such of the western isles as had formerly belonged to his crown, but which had been wrested from it by the Scots. He made himself master of Arran and Bute, and afterwards landed on the coast of Ayrshire. Alexander attacked him at Largs, October 2. After a fierce contest, victory at last declared for the Scots, and the greater part of the invading army fell either in the action or the pursuit. Haco reached the Orkneys, where he soon afterwards died, as is said, of a broken heart, and was succeeded by Magnus, who, discouraged by the disaster which had befallen his father, yielded all his rights to the Western Islands and the Isle of Man (A. D. 1266) to the crown of Scotland, for the sum of 4000 merks, to be paid in four years, and a quit rent of one hundred merks yearly. The Norwegians still retained the Orkney and Shetland Islands. From this period, Alexander was employed for several years in maintaining the independence of the Scottish church against the pretensions of the pope, and in restraining the encroachments of the clergy. His reign was a long and prosperous one, and his death was, in its consequences, a serious calamity to Scotland. While riding in the dusk of the evening along the sea-coast of Fife, his horse started or stumbled, and he was thrown over the rock and killed on the spot. This event took place on the 19th March, 1286.

III. *From the death of Alexander III. to that of James V.*, A. D. 1542.—Alexander left only one grandchild, a female infant, in a foreign country. His own children had all died before him. His daughter, Margaret, had married Eric, king of Norway, and died, leaving issue one daughter, Margaret, commonly called the Maiden of Norway, the now undoubted heiress of the crown of Scotland, and recognised as such by the states of the kingdom about three weeks after Alexander's death. The same convention appointed a regency of six noblemen during the absence of the young queen. These regents for some time acted with wisdom and unanimity; but two of them dying, dissensions arose among the remaining four; and Eric, king of

Norway, apprehensive for the interests of his daughter, applied to Edward, king of England, for his assistance and protection. Edward had already formed a scheme for uniting the two kingdoms by the marriage of his eldest son, Edward, with the young queen of Scots. A treaty was entered into for this purpose, and had the marriage taken place, and been followed by children, England and Scotland might have been united three hundred years sooner than they were. But the Maiden of Norway unfortunately died at Orkney, on her passage to Scotland, and the nation was struck with grief and consternation in beholding the extinction of a race of sovereigns who had distinguished themselves for their bravery and wisdom, and in anticipating the miseries of a contested succession.

The line of Alexander's descendants being thus extinguished, the right of succession reverted to the posterity of David, earl of Huntingdon, grandson of David, the Scottish king. The earl of Huntingdon had three daughters—Margaret, Isabella, and Ada. John Baliol was the *grandson* of the eldest daughter; Robert Bruce was the *son* of the second daughter; and John Hastings was the *son* of the youngest daughter. In our days, John Baliol would have been indisputably heir to the throne, but at that time the law of succession was not so clearly established. Baliol claimed the crown, as being sprung from the eldest daughter; Bruce pleaded that though he was descended from the second daughter, yet, being grandson to the earl of Huntingdon, he ought to be preferred before Baliol, who was only great-grandson to that earl; and Hastings alleged that the kingdom of Scotland, like many other inheritances, was divisible, and that he had a title to a third. The kingdom being declared impartible, the pretensions of Hastings were excluded, and there remained only two competitors—Baliol and Bruce. Eager to avoid a civil war, the decision between these rival princes was referred to Edward I., of England, as umpire. Under pretence of having it in his power to enforce his decision, Edward demanded that all the places of strength in the kingdom should be put into his hands, that he might deliver them up to the successful candidate. The demand was complied with. Edward, thus put in possession of the kingdom, and wishing to retain it, revived those pretensions, which had been formerly in some cases avowed, of the supreme sovereignty of the English monarchs in the Scottish kingdom. This sovereignty, all the learning and ingenuity of his court, aided by all the arts of plausible forgery, were employed to demonstrate, though every one saw, and Edward himself perpectly well knew, the utter groundlessness of the claim. But an army of Englishmen, assembled upon the frontiers, enforced every argument; some pretended to be convinced; some laboured by cunning to evade the required concession, and some nourished in their breasts a secret resentment to which they hoped that time might yet afford ample gratification.

Edward, in the mean time, either convinced that Baliol's claim was superior, or imagining that he was of a more obsequious disposition than his rival, averred, that to him belonged the right of succession, and he was immediately dressed out in the nageantry of a monarch. Lest he should forget, however, that he had a superior, he was summoned to London on the most frivolous pretences, where he was subjected to the most degrading insults, till, unable longer to endure the ignominy of his situation, he retired with indignation to his own country.

The English king saw, with little regret, a mode of conduct in the Scottish king, which might give him a plausible pretence for carrying his arms into that nation. A war with France, in which he was then engaged, prevented him from immediately executing his designs; but he then formed the resolution which he soon executed. The Scots entered into an offensive and defensive alliance with France. Baliol formally renounced his allegiance to Edward; and, not waiting for the expected attack, invaded the English frontiers; but the Scottish soldiers, little trained to regular warfare, were unable to resist the disciplined forces of England. Baliol himself was carried to London, and confined in the Tower, whence, after two years' imprisonment, he was liberated, and, retiring to France, relinquished for ever the contest for regal power.

Edward now held complete possession of Scotland, which he had obtained more through fraud than open warfare. He destroyed or took away all the public records, and endeavoured to obliterate every monument of the former independence of Scotland. He displaced those who had held important offices under Baliol, and bestowed them on Englishmen, who exerted their authority in the most cruel and despotic manner. The unlimited exactions of Cressingham, the treasurer, and the rigour of Ormsby, the justiciary, in taking the oath of fealty, soon rendered them odious to the nobles; while the rapacity and barbarism of Edward's soldiers laid the wretched inhabitants open to every species of wrong and insult. In short, the whole country was laid under a military despotism of the most unqualified and irresponsible kind. At this crisis, **Sir William Wallace** arose. Having killed an English nobleman in an affray, he fled, and offered himself as a leader to a few companions whose desperate fortune, or hatred of the English government, had reduced them to a similar necessity. With a resolute band, he infested the English quarters. His success in these predatory expeditions attracted multitudes to be his companions in arms. With their united forces, they attacked the English justiciary at Scone. The viceroy fled to England, and was followed by all the officers of state. Emboldened by their success, the Scots assailed the castles, and put to the sword all the English who came within their power. Meanwhile, a large English army, under the command of the earl of Surrey and Cressingham, advanced to Stirling, to quell the insurgents. Wallace hastened to guard the passage of the Forth, and encamped near Cambuskenneth. The English general ordered his troops to cross the Forth by a wooden bridge; but scarcely had a division passed over, when Wallace attacked them, routed them, and pushed them into the river. The English burned the bridge, abandoned their baggage, and fled to Berwick. Thus Scotland was once more free; and the castles which the English had still retained were immediately surrendered. Wallace, now invested with the title of governor of Scotland, in the name of king John, marched his army into the north of England, and laid waste the country from Carlisle to Newcastle.

The English king was in Flanders when he received the news of Surrey's defeat and of the liberation of Scotland. Inflamed at this overthrow of his exertions and schemes, he issued orders to all those forces of England and Wales to meet him at York, and marched in person to Scotland with an army which that unhappy country, torn as it was by intestine factions, arising chiefly from a jealousy of the nobility towards Sir William Wallace, could not resist. The Scots were totally defeated at Falkirk (July 22, 1298); and Edward proceeded to the extremity of the kingdom, receiving, wherever he came, the submission of the nobles. By the treachery of one of Wallace's friends, that unyielding patriot was betrayed into his hands; and with a severity unbecoming Edward's character, was carried to London in chains, and executed in August, 1305.

Wallace soon had a more successful, though not a more brave successor. Robert de Bruce, grandson of that Bruce who had been Baliol's rival in the dispute concerning the Scottish crown, formed the design of rescuing the Scots from their present degraded condition, and placing himself upon the throne. He escaped from Edward, who was apprized of his design, and who intended to have seized him. He soon arrived in Scotland; and put to death Cummin, whose treachery had informed the English monarch of the intended revolt. He interested the greater part of the nobility in his favour. He made himself master of the greater part of the fortified places in the kingdom; and had almost entirely liberated the country from its oppressors, when he was suddenly attacked by the English forces, defeated, and compelled to take shelter in the Western Islands. Edward, provoked at the frequent revolts of the Scots, marched in person, with an army sufficient to put the whole nation in such a state, that rebellion should be long hopeless. He had proceeded to Carlisle when he suddenly died.

Before Edward expired, he enjoined his son and successor, Edward II. to prosecute the war with Scotland; but the young king inherited not his father's abilities. Bruce, who had issued from his retreat, and had begun to collect his forces, when Edward I. made his approach, found not a formidable antagonist in Edward II. The English king, advancing only a short way into Scotland, returned and disbanded his army. Bruce gained several advantages over the troops which had been left to preserve the Scots in subjection. He had succeeded so far in animating his followers, that, not content with having gained into his power the greater part of his own kingdom, he marched into England, and laid waste several of the northern counties. Edward was at length roused from his lethargy, and led into Scotland an army more powerful than had ever invaded that country. He came up to Bruce, near Stirling; when the great and decisive battle of Bannockburn, (June 24, 1314) terminated the ill-founded pretensions of the English, and firmly established Scottish independency. Bruce was secured on the throne which he had so bravely acquired; and, after a prosperous reign, he died in 1328.

On the death of Robert Bruce, his son, David II. was proclaimed king by the greater part of the nation. Baliol, however, the son of that Baliol, who, during the reign of Edward I. had disgraced himself by his pusillanimity, formed a party for the purpose of supporting his pretensions to the crown; he was supported by Edward III. a prince of no less illustrious abilities than his predecessor, Edward I. Many battles were fought, and much cruelty was exercised by both parties. Baliol and Edward were at first successful; but, at length David succeeded in expelling the usurper from his kingdom. Still, however, the war between Scotland and England continued with increasing rancour, till, at length, David was made prisoner at the battle of Durham. After being detained in captivity eleven years, he was liberated for 100,000 merks. Returning to Scotland, he died in 1371, leaving behind him no issue.

David was succeeded by his nephew, Robert II. the high steward of Scotland, the first of the family of Stuart who sat on the throne. An act was framed securing the crown to him and his heirs. He concluded a treaty with France, in which the nations mutually stipulated to defend each other. In consequence of an article of the treaty, Robert recalled such of his subjects as served in the English army; a measure which the English considered as a prelude to hostilities. War was soon commenced, but without any considerable advantage to either of the countries, and without producing any material change in their relative situations. Robert II. died in 1390, in the seventy-fifth year of his age and nineteenth of his reign, and was succeeded by his eldest son, John, who, upon his accession, called himself Robert III.

Scotland at this time was rent by the dissensions of its powerful barons, and the feuds of hostile clans. The earl of March, affronted by the king, fled into England. The English refused to give up the earl, and a war immediately ensued. The southern counties of Scotland were ravaged by Percy; and Henry IV. proposed to make an entire conquest of the country. He marched with a large army. He proceeded as far as Edinburgh; and had, for some time, laid siege to that fortress, when a conspiracy in England rendered it necessary for him to retire. The latter part of the reign of Robert III. was disturbed by the ambition of the duke of Albany. That nobleman, regardless of justice in his measures, procured the death of the duke of Rothesay, the heir of the crown. Unable to take vengeance on the powerful perpetrator, or even to protect the remaining branches of his family, the monarch designed to send his second son, James, into France, for the purpose of being educated in safety. James was intercepted by the English, and detained a prisoner; an event that so much affected his father, that he soon died of grief. This event took place in 1405.

James being then only eleven years of age, and a captive, the regency devolved on the duke of Albany, and the kingdom was the scene of much domestic confusion. Many Scotchmen repaired to France, where they entered into the army, and acquired much honour by their courage and discipline. The Scottish prince was detained in England nineteen years; but the excellent education bestowed on him, in some measure compensated for the injustice of his captivity. At length, when he had attained his thirtieth year, he obtained his liberty; and, returning to his own country, he endeavoured to correct those abuses which had arisen from the prevalence of the feudal system in its rudest form. This attempt was far from being agreeable to his ferocious barons; and the resumption of the crown lands which had been alienated during his captivity, rendered him still more odious. Such, at length, was the resentment of some of his nobles, that in 1437, he was, by their followers, assassinated while at supper, in a convent in the neighbourhood of Perth.

His son and successor, James II. being only seven years of age, the country was subjected to the miseries of a long and feeble regency. When at length he assumed the reins of government into his own hands, James displayed a prudence and fortitude, which inspired hopes of a reign favourable to his country. These hopes were prematurely blasted, by his being accidentally killed by the bursting of a cannon at the siege of Roxburgh (1460), in the twenty-ninth year of his age and twenty-fourth of his reign.

James III. was not quite seven years of age when he succeeded to the kingdom: like that of his father, therefore, the reign of this prince was subject to all the troubles of a minority, equally long; but the disorders of the kingdom did not terminate with the minority. The king, of a pusillanimous and irresolute temper, attached himself to persons of mean station, and, for the most part, of contemptible abilities. He hated his nobles, and was, in his turn, despised by them. Frequent quarrels and insurrections were terminated by open rebellion; in which a party of nobles had the influence to prevail on the king's own son to place himself at their head. The forces of the rebels were numerous, but the king's troops were in number at least equal. They came to an engagement in the neighbourhood of Stirling. James' cowardice ruined his cause. He fled at the first onset, was thrown from his horse, carried into a miller's hut, and, by a person who, calling himself a priest, was brought to confess him, he was treacherously murdered. His death took place in the thirty-sixth year of his age, and the twenty-eighth of his reign.

James IV. was crowned in 1487, while he was yet a minor; but his minority seems to have been attended with few of those disorders which had distinguished those of his predecessors; and when he assumed the power into his own hands, he enjoyed a degree of quiet and prosperity, almost unknown to the former monarchs of Scotland. He espoused the daughter of Henry VII., and thus laid the foundation of the future union of the two kingdoms. He concluded a peace with England, which, in the treaty, was vainly termed perpetual. During the reign of Henry VII., indeed, it remained unviolated; but, such was the predilection of the Scots towards a connexion with France, that, during the reign of Henry VIII., James was induced to embrace the French interest, and to invade England. The undertaking proved fatal to himself, and hurtful to his kingdom. He invaded the northern counties; and, engaging the English army at Flodden, he fell, with the greater part of the nobles by whom he was accompanied. The battle of Flodden, so disastrous to the Scots, was fought in 1514. James was slain in the forty-first year of his age, and the twenty-sixth of his reign.

The death of James IV. once more subjected Scotland to the turbulence of a long minority. The nobles had, during the former minorities, been gradually acquiring a greater share of power than was consistent with the stability of government. Each of the princes of the house of Stuart was employed, during the latter part of his reign, in reducing that power, which, during the former part of it had become exorbitant. The minority of James V. was, if possible, more turbulent than that of any of his predecessors. The influence of the queen, his mother, prevented the commencement of hostilities with England; but this only afforded the nobles a better opportunity of quarrelling with each other. James' interest ought, perhaps, to have induced him to form, by marriage, an alliance with England; but his attachment to France prevailed, and he married the daughter of the French king. This princess lived not long after her nuptials; and James espoused a princess of the same nation, the well known Mary of Guise. The king, in many cases, consulted the true good of his country; and his institution of the Court of Session entitled him to the gratitude of his subjects: but his continual efforts to depress the nobility, though not inconsistent with the interests of his kingdom, embroiled him with that powerful body, and rendered almost his whole reign disastrous. Had he understood the political relations in which it was proper for Scotland to stand, he might have promoted the power of his kingdom while he preserved its peace; since his alliance was courted by the kings of England and France, as well as by the emperor and the pope; but his attachment to France led him to commence hostilities against England; and the disgust of his nobles, prevented him from carrying on the war with honour or success. The disgraceful issue of an expedition which he had sent against England, made an impression which nothing could obliterate. He survived only a few days, and expired in 1542, expressing the incurable anguish with which the defeat of his army, at Solway, had inspired him.

IV. *From the death of James V., to the accession of James VI. to the English throne,* A. D. 1603.—James V. left only one legitimate child, who was born at Linlithgow a few days before his death. This was the celebrated Mary, whose beauty, accomplishments, and misfortunes, have given her an European fame. Mary of Guise, the queen mother, had the art to obtain the regency; but, the soothing measures, which for that purpose, she was constrained to pursue with all ranks, gave an advantage to the reformers in religious matters, to which she was otherwise extremely averse. The minority of Mary was not without its troubles, arising chiefly from a continual struggle between those who favoured an alliance with England, and those who were attached to the interests of France. The policy of Elizabeth, who now filled the English throne, made her rather foment than terminate the struggle; since she thereby gave ample employment at home, to a nation, which, had it been united in its councils, might have proved a troublesome foe.

The young Scottish queen was early carried to France for the purpose of being educated; and through the influence of her relations of the family of Guise, was married to the eldest son of the French king. Her husband ascended the throne of France, under the name of Francis II., but lived not long to enjoy the power which he had inherited. Mary soon found it necessary to return to Scotland, where she ascended the throne of her ancestors, with not only the approbation, but the love of all ranks. For some time her felicity was unimpaired; but her subjects required her to choose a husband; and the ardour of youthful passion, rather than the dictates of policy, or even of prudence, induced her to accept of the hand of Henry, lord Darnley, a man of comely appearance, but headstrong, foolish, and in some instances, brutal. Darnley's disposition soon lessened the affections of the queen; and her love, formerly so violent, was, in a short time, converted into a hatred not less violent. From private quarrels, they proceeded to public insults and injuries. Jealous of the influence of Rizzio over Mary, if not of a criminal intercourse between them, Darnley, aided by a few nobles, murdered him almost in her presence. This increased and confirmed that hatred which had already taken possession of her mind. Bothwell, a nobleman of the most unbounded ambition, unguarded by any scruples, insinuated himself into Mary's favour; and the services which he had rendered her, joined to her resentment against her husband, seem to have induced her to follow a mode of conduct which it is impossible to justify. Soon after the birth of the only child which she ever had, and who was afterwards known by the name of James VI., Darnley was murdered. Bothwell is known to have been the perpetrator of the deed; and suspicions were propagated that the queen herself was privy to the crime. Bothwell was brought to trial, but under circumstances which favoured the accused, and he was declared by a jury innocent of a crime of which all the world believed him guilty. Emboldened by this, Bothwell convened a number of the principal nobility, and prevailed upon them to sign a bond, in which they not only declared him innocent of Darnley's death, but recommended him as the fittest person whom her majesty could choose for a husband. Thus authorized, he suddenly appeared at the bridge of Cramond with a thousand horse, as Mary arrived there on her return from Stirling to Edinburgh, took the queen's horse by the bridle, and surrounding and disarming her attendants, led her to the strong castle of Dunbar, of which he was governor. The defenders of Mary contend, that she was seized by force, and her honour violated, and that her subsequent marriage with Bothwell was inevitable. Her detractors, on the other hand, affirm, that Bothwell's conduct met with her approval, and that the force apparently used was merely to cover the shame of a guilty passion. It is not to be denied, that her marriage to that profligate and ambitious man is the most unjustifiable point in her history, and dearly did she pay the penalty of her folly. So grossly did Bothwell use her after he had secured her hand, that she has been heard to pray for a knife to stab herself with, rather than endure his ill-treatment. The Scottish nobles and people were roused with indignation at her conduct. An army was speedily collected, and on the twelfth of June, 1567, they issued a proclamation avowing the cause of their taking arms to be, to deliver the queen from the captivity of her husband, to preserve the prince, and to punish the murderers of the late king. Both parties made hasty preparations for hostile collision, and an army soon collected around the queen. Mary and Bothwell marched from Dunbar towards Edinburgh: the lords of the congregation advanced to meet them; and at Carberry-hill, a battle was every moment expected, which was to decide a distracted country. But Mary, after a short communication with Kirkaldy, who commanded an advanced party, agreed to quit Bothwell, to join the associated lords, by whose councils she was now willing to be directed, on condition of their "respecting her as their born princess and queen." Bothwell left the field and sailed for the Orkney islands, where he was pursued by Kirkaldy of Grange, but he escaped in a boat, and proceeded to Denmark, where he was thrown into prison, and died. Mary was conducted to Edinburgh, amidst the reproaches of her subjects. After the repose of a wretched day, she was committed a prisoner to the fortalice of Lochleven, which was kept by William Douglas, who had married the concubine of James V., the mother of the bastard Murray. Whatever pretences were still used, by the associated lords, it is apparent, that they had finally resolved to dethrone the queen; and she was forced, on the 24th of July 1567, to sign a formal resignation of the crown. She, at the same time, assented to the regency of Murray. After these events, and notwithstanding the utmost degree of watchfulness, Mary made her escape from Lochleven castle on the 2d of May 1568. As she had many friends, she was soon surrounded by an army. The queen and the regent Murray now prepared for war. But the fortune and conduct of Murray prevailed at the battle of Langside, on the 13th of May, 1568. Mary fled from the field of battle, first to Kirkcudbright, and afterwards across the Solway to Workington in England, where she claimed the protection of her cousin, Elizabeth. The stricken deer might as well have sought refuge in the den of the tiger. After nineteen years of weary captivity, Mary was sacrificed to the jealous feelings of her rival. Her execution took place at Fotheringay castle, on the 8th February, 1587.

Murray, a natural brother of Mary's, and in secret league with Elizabeth, held the regency of Scotland till the 26th Feb. 1570, when he was shot in the streets of Linlithgow, by Hamilton of Bothwell Haugh, whose wife had been expelled her house, and driven to insanity, by the harshness of Murray's measures. The earl of Lennox, the earl of Mar, and the earl of Morton, were regents in succession. In 1578, a party attached themselves to the young king (James VI.) while yet a boy, and he assumed the reins of government. Means were taken to remove Morton. He was convicted of participating in the murder of Darnley, and executed on the 2d June, 1581. In 1589, James sailed to Denmark, where he married Ann, daughter of Frederic II. in the sixteenth year of her age. The year 1600 was distinguished by the Gowrie conspiracy against the life or liberty of James. On the 19th March, 1603, Queen Elizabeth died, and James succeeded to the crown of England. From that time till near the middle of the last century, Scotland declined not only in importance but in wealth. Considered rather as an appendage of England, than as a part of Britain, it enjoyed none of those advantages which its alliance with that kingdom seemed at first to promise. It had a parliament of its own; but was in form more than in reality, the seat of government. Neglected by its nobles, who attached themselves to the court in England; despised, sometimes oppressed, by its princes, who forgot that to it they owed their origin, Scotland became every day less considerable, till the reign of Anne, when Britain was, by a treaty between the two countries, declared to be an inseparable kingdom.

V. *From the accession of James to the English throne to the Union of the two kingdoms*, A. D. 1707.—The period of time from the union of the crowns to the union of the kingdoms, was characterized by civil wars and national revolutions. James, at the age of thirty-seven, ascended the throne of England, amidst the acclamations of his subjects, both Scots and English. An unusual calm ensued within his ancient kingdom. The spirit of the nobles seems to have been somewhat broken, or was perhaps turned to more distant views of ambition, and other objects of pursuit. There were seven Scottish parliaments called by James, after his accession, wherein he presided, by a commissioner. This was a new officer in the state which a new situation of things required. A law was passed in 1606, for the restitution of the estate of bishops, which the king declared he had never intended to suppress. This restoration was followed by a great variety of laws, for giving proper effect to the general principle. The estate of the bishops was not, however, restored to the people's confidence. There were many laws enacted for promoting domestic economy. James died on the 27th March, 1625, after governing Scotland with more authority and success during two and twenty years' absence, than when he was personally present in the country.

James was succeeded by his son, Charles I., in the twenty-fifth year of his age. Ten years of quiet was followed by frequent perturbations. The king returned to Scotland after a long absence, in 1633, to be crowned, and to hold a parliament. With ample power and high prerogatives, he possessed no influence, having nothing to bestow. Yet the parliament was servile and submissive. Among many laws of a salutary tendency, they passed an act, resuming to the crown those lands which the baronage had wrested from the church; the clergy were thus benefited, the people were relieved, but the barons were offended. In the midst of dissatisfaction, the king introduced a book of canons and a new liturgy. These were the signals of insurrection in the capital, and discontent throughout the kingdom; it being supposed, that such innovations were preparatory to a restoration of Popery. The year 1637 may be considered as the beginning of a civil war, which lasted, with short intermissions, during fifty years.

After the execution of Charles I., in 1648, the Scots proclaimed his son king, under the title of Charles II. Cromwell passed the Tweed on the 22d of July, 1650. He defeated the Scots at Dunbar, owing more to the madness of the clergy, than to any want of skill in the generals, or bravery in the men. Charles II. marched into England; and at Worcester, on the third of September, 1651, was defeated. In April, 1652, by an ordinance of the English parliament, Scotland was incorporated into one commonwealth with England, in whose fortunes it now partook.

The restoration of Charles II. to the throne of his ancestors, in England, was followed by his restoration in Scotland. The Scottish parliament assembled, under the earl of Middleton, the king's commissioner, on the 1st of January, 1661. Much of what had been done, during the three and twenty years of trouble and bondage, was now rescinded. The king, through his commissioner, declared in parliament his resolution to maintain the true reformed Protestant religion, as it had been established during the reign of his father and grandfather; intimating, however, that he would restore the episcopal government, though he allowed, meanwhile, the administration of sessions, presbyteries, and synods. This endeavour to establish episcopacy was violently opposed, and led to the most cruel persecution of the presbyterians, which lasted, with more or less severity, during the whole of the profligate reign of Charles. Hundreds were executed on the scaffold, others were fined, imprisoned, and tortured; and whole tracts of the country were placed under a military despotism of the worst description. Driven to desperation, the presbyterian party had several times recourse to arms, and, although in some cases successful, they were finally defeated and scattered at Bothwell Bridge.

The death of Charles II., on the 6th of February, 1685, transferred his feverish administration to his brother, James II. James professed his intention to support the government, in church and state, as by law established; yet, without adverting to the experience of his father, he immediately adopted the imprudent ambition of converting his people to the Catholic religion. He was encouraged in this imprudence by the servility of the Scottish parliament, who seemed willing to invest him with absolute power. Yet when he applied to parliament for an indulgence to his Catholic subjects, that assembly, however complaisant as to their civil liberties, resolved to adhere to their religious principles. As the parliament thus refused their concurrence, James had undisguised recourse to his prerogative, for effecting an illegal change in the religious establishment. Universal discontent was the result of this measure. When the people of Scotland heard of the landing of the prince of Orange, and read his declaration in favour of liberty and in support of law, they hailed his advent with joy. The nobles began to intrigue; the populace, in their zeal, broke out into insurrection against the Catholics at Edinburgh. The earl of Perth, the chancellor, a new convert, imitating the pusillanimity and distraction of his master, now deserted his charge; and the privy council, which was noted equally for its servility to the sovereign and harshness to the people, on this occasion made their application to the prince of Orange, to whom every one looked up as the deliverer of the two nations from Popish dominion. William consulted several of the Scottish nobles, clergy, and gentry, regarding the state of their country, and issued circular letters, summoning a convention at Edinburgh, on the 22d March, 1689. We may easily suppose that the most zealous and active of the constituent members would attend on such an emergency. In England, at the revolution, it was of great importance to the security of the constitution and the quiet of the country, that the two great parties into which the nation was divided, were so equally balanced; but, in Scotland, the members of the convention were all of one party, and were all actuated by a strong sense of their recent wrongs. After a slight opposition, they boldly decided that king James, by his abuse of power, had *forfeited* the right to the crown; and immediately declared the prince and princess of Orange to be the king and queen of Scotland. This act, which involved such mighty consequences, was attended by a declaration of their wrongs and rights. Former insurrections, though accompanied by many mischiefs, passed away without any advantage to the nation. The revolution of 1689 brought with it a civil war, indeed, but was the means of strengthening the constitution, of preserving public liberty, and securing private rights. The presbyterian church was now erected on the ruins of episcopacy; the prerogative was restrained to its proper functions; yet the administration retained much of its ancient harshness; and much remained to be done for giving efficacy to law, and affording safety to property and persons. This revolution was also followed by much salutary legislation for promoting domestic economy.

The reign of William was marked by two events which rendered his character generally unpopular in Scotland, and strengthened the cause of the Jacobites; we allude to the massacre in Glencoe, and the unfortunate result of the Darien expedition. In August, 1692, in consequence of a pacification with the Highlanders, a proclamation of indemnity had been passed to such insurgents as would take the oath to the new government on or before the last day of December. The last man to submit was Macdonald of Glencoe. Towards the end of December, he applied to the governor of Fort-William, who refused, not being a civil magistrate, to administer the oaths; but dispatched him in haste, with an earnest recommendation to the sheriff of Argyle. From the snows and other interruptions which he met with on the road, the day for appointed submission had elapsed, before he reached Inverary, the county town. The benefit of the indemnity was strictly forfeited; the sheriff was moved, however, by his tears and entreaties, to receive his oath of allegiance, and to certify the unavoidable cause of his delay. But his oath was industriously suppressed, by the advice particularly of Stair the president; the certificate was erased from his list presented to the privy council; and it appears that an extensive combination was formed for his destruction. William was persuaded that Glencoe was the chief obstacle to the pacification of the Highlands, and a warrant of military execution was procured from him against the unfortunate chief and his whole tribe. Campbell of Glenlyon, a captain in Argyle's regiment, was ordered with an hundred and twenty men to repair to Glencoe on the 1st of February. The soldiers were received on assurance of peace and friendship, and were quartered for above a fortnight among the inhabitants of the sequestered vale. On the evening of the 13th, orders arrived to attack the Macdonalds while asleep at midnight, and not to suffer a man to escape their swords. Before the break of day, a party, entering as friends, shot Glencoe as he rose from his bed. His wife was stript naked by the soldiers, who tore the rings with their teeth from her fingers; and she expired next morning with horror and grief. Nine men were bound and deliberately shot at Glenlyon's quarters; his landlord was shot by his orders, and a young boy, who clung to his knees for protection, was stabbed to death. At another part of the vale, the inhabitants were shot while sitting around their fires, and women perished with their children in their arms. Thirty-eight persons were thus inhumanly massacred by their guests and inmates. The rest, alarmed by the report of musquetry, escaped to the hills, and were only preserved from destruction, by a tempest that added to the horrors of the night. The carnage was succeeded by rapine and desolation; the houses were burned to the ground, and women and children stripped naked, and left to perish in the snow. This horrible massacre excited universal execration, and rendered the government of William justly odious to the highlanders. It was succeeded three years after by the expedition to Darien, the unfortunate result of which nearly involved Scotland in national bankruptcy, and raised an outcry from one end of the land to the other against the injustice of the English government in its conduct towards the colonists. (See a full account of the Darien expedition in this Encyclopedia, under the article *Darien.*)

The demise of William, in 1702, transferred the crowns of the two nations to queen Anne. She wrote to the Scottish privy councillors, authorising them to continue their authority; and assuring them that she would support the established government. The same parliament which had established the Revolution, continued to act on the accession of Anne, though not without protestations of its illegality. They passed an act for treating of an union with England, which they annulled in the subsequent year. The spirit of division seems to have overspread the land. In 1703, the parliament refused to tolerate episcopacy, and they declined to concur in adopting the protestant succession for the crown. They carried their ill-humour one step farther. They questioned the power of the queen to negative their bills. They issued a declaration which intimated a purpose, in case of the demise of the crown, to appoint a different sovereign from the English king. Such were the movements which led to the appointment of commissioners to treat of a union between the sister kingdoms. The terms of the union were particularly obnoxious to the Scotch, and the nation, instead of regarding it as an identification of the interest of both kingdoms, considered it as a total surrender of their independence, by their false and corrupted statesmen, into the hand of their powerful rival. All ranks of people, however divided in other matters, joined issue against this detested treaty, which involved the loss of national independence, on the one hand, and on the other, imposed a vast number of duties, customs, and restrictions upon a country to which they were before unknown. Addresses against it were presented from all quarters, and in several places the populace rose in arms and formed themselves into regiments of foot and horse in order to oppose the union. Even the commercial part of the community, who were supposed to benefit so largely by it, were dissatisfied, and with justice, at the terms of the treaty. Before the union, the trade of Scotland had been open to the Levant, the Baltic, France, Spain, Portugal, Holland, and the Dutch plantations; and it seemed difficult to conceive how the commerce of the country could be advanced by laying restrictions on it to all those places, especially as the compensation allowed, namely, the privilege of trading to the English settlements and the plantations in America, was very trifling, as the amount of the exports to these places did not then nearly equal the expense of defending them. Notwithstanding, however, every opposition, the treaty of union was ratified by a small majority of the Scotish and a large majority of the English parliament; and on the 1st of May, 1707, Scotland became united to England, amid the dejection and despair of the people, and under a sullen expression of discontent, which was fully justified not only by the terms of the treaty, but by the manner in which the treaty was carried. An influx of English revenue officers now overspread the country, till then but slightly acquainted with the oppressive laws of revenue, and their severe exactions tended to keep up the resentment of the nation. Nor was the Union productive, for many years, of those advantages which were at first expected. A feeble attempt to obtain a share in the colonial trade was defeated by new regulations which the commercial jealousy of the English merchants procured. No new manufactures were attracted to Scotland; on the contrary, commerce became more languid than before, and the price of land and rents fell. Every national exertion was discountenanced, and during nearly fifty years, either the interests of the country were disregarded, or it was treated like a conquered province, prone to revolt. The nation, in short, appeared to be stationary, and was certainly far less progressive than if no Union had ever been contracted. On the 1st of May, 1708, the privy council of Scotland was abolished, and one privy council was settled for the united kingdom. The useful institution of justices of the peace was extended to Scotland. The circuit courts, which brought justice into every district were regulated. The English laws of treason, much more savage and harsh than those of Scotland, were also extended to this country; but, to balance this, it was declared that no person who was accused of any crime should hereafter be subject to torture. In addition to these changes, some ecclesiastical measures were adopted, perhaps with equal success, though they were opposed by the church judicatories. Episcopal congregations were protected as legal; and it was declared, that no forfeiture should be incurred, in consequence of any ecclesiastical censure. The right of patronages was restored to those who were supposed to represent the original founders of the several churches. In order to give effect to all these measures, a secretary of state for Scotland was appointed, who was soon found to be of less use than had been originally conceived.

The death of Queen Anne, on the 1st of August, 1714, transferred, under the act of settlement, the united crown to George I. The early measures of the new reign were dictated by extreme violence, an impolicy which produced disaffection in England and rebellion in Scotland A few months of the year 1715 saw the rebellion under the earl of Mar suppressed (see *Britain*). Forfeitures followed in its train, and the jurisdictions which were thus transferred from the ancient proprietors, who had only used them for selfish purposes, were annexed to the crown. The spirits of men, during these party conflicts, were still greatly embittered; and the year 1718 was marked by the issue of a commission of vengeance, when the terrors of insurrection had ceased. Commissioners of Oyer and Terminer sat at Perth, Dundee, at the county town of Fife, and at Kelso on the Tweed, to inquire into the treasons which had been committed in 1715. But the firmness of the grand juries in negativing the presentments, taught their rulers the wisdom of forbearance, after justice had had her sacrifices. In the subsequent year, there was an invasion of North-Britain by a small number of attainted nobles, on the western coast of Ross-shire, which was soon repulsed. The parliament, in 1725, enacted, that the highlanders should be disarmed; and this was performed with mildness and discretion by General Wade. But insurgents of a very different sort soon came upon the stage. The malt-tax, which had occasioned, during the late reign, a motion in parliament for a dissolution of the Union, was extended over Scotland during the present. The voice of every party and every person in this country was now raised in reprobation of this hated measure. An insurrection broke out at Glasgow, on the 24th June, 1725, in which the house of its representative in parliament was sacked, and the king's troops expelled the city. Every town and village was ready to imitate their example; and the king's servants at length saw that the united passions of a whole people must be respected. They abolished the office of secretary of state for Scotland, and sent to that country, as a confidential agent, the earl of Islay, a nobleman of uncommon address and talents, yet of little scrupulosity in his means. General Wade with Duncan Forbes, the king's advocate, marched at the head of an army into Glasgow. The principal insurgents were arrested; the magistrates of that city were carried prisoners to Edinburgh, where they were not long detained. By great efforts of management and perseverance, the malt-tax was enforced with some mitigations; but a proper respect was henceforth paid to the spirit of the people.

In June, 1726, the king invited the convention of royal burghs "to prepare schemes for their future welfare." Royal trustees were appointed, in 1727, for carrying those schemes into practical effect. A royal bank was at the same time established, at Edinburgh. In 1723, a society for the improvement of agriculture was formed at Edinburgh, consisting of the most distinguished personages in Scotland. This society continued its meetings and exertions till the rebellion in 1745 shed its baneful influences upon it.

Meantime, the death of George I., on the 10th May, 1727, transferred his crown, under the act of settlement, to George II. The ten years of peace which succeeded his death, contributed to the national prosperity. A war began, in 1738, with Spain, which drew on hostilities with France, in 1744; and, in addition to the calamities of both, Scotland was soon involved in the miseries of insurrection. Much had been done for preserving quiet; yet more remained to be carried into effect, during the existing circumstances, for giving vigour to law, and teaching obedience to the governed. The whole country was distracted by domestic faction. The districts lying northward of the Forth were actuated by discontents, which were peculiar to themselves. Of all those dissatisfactions, the king's ministers were amply informed; yet were unable, or unwilling, during unpropitious times, to apply adequate remedies to those various disorders. In this state of affairs, the nation was threatened with an invasion from France. In August, 1745, the standard of revolt was raised, within the recesses of the highlands, under the auspices of a grandson of James VII., who now claimed what his grandfather was declared to have forfeited. The successes of the revolted, during eight months, evinced the weakness and impolicy of the king's ministers. At length, on the 16th of April, 1746, that rebellious standard was torn down for ever, at the battle of Culloden.

On the 25th of March, 1747, an act "for taking away heritable jurisdictions," was passed. Other laws were passed, for giving full effect to that salutary measure. It was objected, indeed, that those jurisdictions had been saved by the Union, to the proprietors. But, it was observed, that the power of parliament had been also reserved to alter the union, for the obvious melioration of the whole people. And another principle of the constitution was brought in to aid that reservation; by declaring that the fair value of those private rights should be settled by the court of session, and paid for by the public. The great object appears to have been "to make effectual provision for the regular administration of justice throughout North-Britain, by the king's judges." Such were the measures arising from the rebellion of 1745, which gave completeness to the union of 1707.

By the abrogation and sale of hereditary jurisdictions, the poverty of the nobles was relieved, and the people were emancipated from their oppressive coercion. In 1755, the situation of Scotland attracted the peculiar attention of Pelham's administration, and from that period the benefits of the Union began to be universally felt. The forfeited estates, instead of being sold as formerly, were appropriated to objects of national improvement; and industry was promoted by every encouragement which bounties can confer. The progress of industry and trade now became great. New manufactures were introduced with success, and the rapid cultivation of the country redoubled the produce and the value of the soil. Before the commencement of the American war, the merchants of Glasgow had engrossed the chief trade in tobacco for exportation. The interruption of trade during that disastrous war, directed their capital, and the national industry, to the improvement of domestic arts, and from the perfection of modern machinery, the cotton manufacture, a recent acquisition, in all its branches so prodigiously increased, already rivals and supplants the production of the ancient looms of Indostan. Undoubtedly much is to be ascribed to the spirit and progressive state of the nation; but without the Union, its unavailing efforts would have still been uncountenanced by the commercial jealousy and depressed by the influence of the English government. See the articles *Britain* and *England.*

Ecclesiastical History.—Christianity was introduced into Scotland as early as the fifth century; and like other parts of Western Europe, this country became subject to the authority of the Holy See, and the church was governed by a priesthood, distributed into various ranks. The monastic and mendicant orders here flourished, especially under the patronage of David I., whose great liberality to the church occasioned one of his successors to observe, on his being called St David, that he was "ane sair saint for the crown." All the churches in Scotland previous to the Reformation belonged either to regulars or seculars. The regulars followed St Augustine, bishop of Hippo, St Bennet, &c.; and were either canons, monks, or friars. The seculars followed rules dictated by their own chapter, and lived in separate cloisters, or in private houses near their own churches; and were governed by a dean, or provost. Those that followed St Augustine were the regular canons of St Augustine,—the Præmonstratenses,—the Red Friars,—the Dominicans or Black Friars,—the Lazzarettos,—and the canons of St Anthony. St Bennett's followers were the Benedictine monks of Marmontier, of Clugny, of Tyron,—the Cistertians, or Bernardines,—and the Vallis Caulian monks, so called from Vallis Caulium, in the diocese of Langres, in France,—the Carmelites, or White Friars,—the Franciscans,—and the Carthusians. All these were subdivided into rented religious and mendicant or begging friars. Under the first denomination, were canons regular, and the Benedictine, Cistertian, Carthusian, Vallis Caulian monks, and Red Friars. Under the second were the Black, Gray, and White Friars. At this time also more than half the wealth of the nation was possessed by the Popish clergy, and the greater part of this was in the hands of a few who ruled the rest. Bishops and abbots rivalled the first nobles in magnificence, and preceded them in honour: they were privy councillors, and lords of session, as well as of parliament; and the principal offices of the state, for a long time, were wholly engrossed by them. The inferior benefices were openly put to sale, or bestowed on the minions of bishops. Benefices given *in commendam* were kept vacant during the commendator's life, sometimes during several lives, to the deprivation of extensive parishes of all provision of religious service. Besides the regular and secular clergy, there were nuns of St Austin, St Clare, St Scholastica, and St Catherine of Sienna, and canonesses of various orders, whose general ignorance was as great as their morals were gross. Though the papal see had not the power of presenting to the Scottish prelacies, it never wanted numerous pretexts for interfering with them. The most important civil causes, which they had contrived to bring within the pale of their ecclesiastical jurisdiction, were carried to Rome; whither also, money in large quantities was sent for the purchasing of palls, the confirmation of benefices, and the conducting of appeals, &c. In 1528, the desire of reformation which agitated other parts of Europe, made its appearance in Scotland. The doctrines of Luther were rapidly and widely diffused throughout Scotland, notwithstanding the opposition of the clergy. At last a more systematic persecution was resorted to, and the first martyr whose blood flowed in the cause of the Reformation in Scotland was Patrick Hamilton, abbot of Fearn, who had imbibed the new tenets during his travels on the continent from the conversation of Luther and Melanchthon, and had begun to propagate them on his return to his native land with great success. In 1538, Forest, a Benedictine friar, and a disciple of Hamilton, was condemned to the stake for vindicating the tenets of his master; and in the following year the friars Keiller and Beveridge, Sir Duncan Simpson, Forrester, and Forrest, vicar of Dollar, were condemned as heretics by a convocation of bishops assembled in Edinburgh, and burnt together in the same fire on the Castle-hill. Such violent proceedings alarming the Protestants, many of them saved themselves by voluntary exile; but others boldly remained behind and became the apostles of the new doctrines to their countrymen.

The Reformation in Scotland commenced in the reign of James V., and made considerable progress under that of his daughter, though both of them were Catholics; it was completed by the abilities and fervent zeal of John Knox, and other Protestant preachers, who had adopted the doctrines of Calvin, established at Geneva. In 1560, the Roman Catholic religion was abolished, and the Reformation was sanctioned by act of Parliament. Until a regular form of church-government was settled, a few superintendents were appointed, who were accountable to the general assembly. As soon as presbyteries were erected, the office of superintendent ceased. General assemblies began in 1560, and continued to meet twice every year, for the space of twenty years; after which they were annual. From 1572 to 1592, a sort of Episcopacy obtained in the church, while the ecclesiastical form of government was Presbyterian. Meantime, the dignitaries of the church and the nobility monopolized the revenues of the church, and left the reformed clergy in a state of indigence. After much deliberation, the Protestant leaders resolved to provide a state-maintenance for their teachers, and the following plan was adopted. Two-thirds of all ecclesiastical benefices were reserved to the present possessor, and to the crown the remainder was annexed, out of which a competent subsistence was to be assigned to the Protestant clergy. But the revenue thus appropriated, instead of being duly applied, was diverted into other channels. In 1587, all the unalienated church-lands were annexed to the crown; and the tithes alone were reserved for the support of the clergy. Bishops continued till 1592, when presbyterian government was established by an act of parliament, and a division was made of the church into synods and presbyteries. But the king, desirous of having the power of the bishops restored as a balance to the nobles in parliament, prevailed on a majority of the clergy, in 1597 and 1598, to agree that some ministers should represent the church in parliament, and that there should be constant moderators in presbyteries. In 1606, by act of parliament, the temporalities of bishops were restored; and they were allowed a seat in parliament. Thus the presbyterian government was overturned. In 1610, episcopacy was established by an act of the general assembly at Glasgow. To this change of government the civil sanction was given in 1612; but the subordination of judicatories was regularly kept up until Charles I. mounted the throne. Assemblies were then set aside; but synods and presbyteries were continued. Bishops, now being under no control, and encouraging tyranny in the state and innovation in the church, became so hateful, that all ranks concurred in their ejection. By an act of the general assembly in 1638, episcopacy was condemned, and the bishops were deposed. This restoration of presbyterian government was ratified by parliament in 1641. By another act, landholders were permitted to buy their own tithes, at from six to nine years' purchase, liable however to the augmentation of stipends. General assemblies were annually kept till 1653, when this court was put down by the civil power. From this time till 1690, there was not a meeting of the general assembly, In 1662, the government of the church by bishops was restored by the royal prerogative, and in the same year was ratified by parliament. Synods and presbyteries were allowed. A persecution of presbyterians ensued, during which about 400 ministers were ejected for nonconformity, and great numbers of covenanters perished for their testimony.

In 1689, prelacy was declared, by a convention of estates, to be a national grievance, which ought to be abolished. In 1690 the presbyterian government was restored and established by parliament; and the general assembly met, after it had been discontinued from the year 1652. Hitherto, the provision for the maintenance of the clergy was inadequate. Complaints being made to king James in 1602, commissioners, in 1617, were appointed to plant churches and modify stipends. By these commissioners the lowest stipend was fixed at six chalders of victual, or 500 merks. In 1633, the *minimum* of stipends was raised to 800 merks, or eight chalders of victual. As the value of grain soon after rose to £100 Scots per chalder, this became the legal conversion in adjusting stipends, and in the valuation and sale of tithes.

The presbyterian church government, afterwards secured in the treaty of Union, is founded on a parity of ecclesiastical authority among all its presbyters or pastors, and modelled after the Calvinistic plan in Geneva, which Knox recommended to his countrymen. This form of government excludes all pre-eminence of order, all ministers being held equal in rank and power. The manner in which power is distributed among the judicatories of the church is as follows: Scotland is divided into parishes, each of which has one pastor, who discharges the pastoral office according to his discretion, and is accountable to the presbytery of which he is a member. In matters relating to discipline, a pastor is assisted by elders, who ought to be selected from among the most intelligent and consistent of the parishioners, but who have no right to teach, nor to dispense the sacraments. Their proper office is to watch over the morals of the people, and to catechize and visit the sick. They likewise discharge the office of deacons, by managing the funds for the maintenance of the poor within their bounds. The elders and ministers compose what is called a *Kirk* or *Church-session*, the lowest ecclesiastical judicature in Scotland. When a parishioner is convicted of immoral conduct, the church-session inflicts some ecclesiastical censure. If a person thinks himself aggrieved he may appeal to the presbytery, which is the next superior court. The ministers of an indefinite number of contiguous parishes, with one ruling elder chosen half-yearly, out of every church-session, constitute what is called a *presbytery*, which has cognizance of all ecclesiastical matters within its bounds. Presbyteries take trial of candidates for the ministry, whom, if they find duly qualified, they license to preach, but not to dispense the sacraments. Holy orders are not conferred on such licentiates till they acquire a right to a benefice. Presbyteries also judge their own members, at least in the first instance. But appeals from their judgments to the synod, in whose bounds the presbytery lies, are competent. Presbyteries originally held their meetings every week, now every month; and they have power to adjourn to whatever time or place within their district they shall think proper. But, if they neglect to adjourn, they are considered as defunct, and can only be revived by the General Assembly, and not by act or deed of their own.

Synods are composed of several presbyteries, and of a ruling elder from every church-session within their bounds. Most of them meet twice a year, viz. in April and October. They review the procedure of presbyteries, and judge in references, complaints, and appeals from the inferior court. But their decisions and acts are reversible by the *General Assembly*, which is the highest ecclesiastical court, and from which there is no appeal. For a more full account of church judicature, see our article, *Assembly, General.*

There are thirteen provincial synods: 1. Lothian and Tweeddale, containing the presbyteries of Edinburgh, Linlithgow, Biggar, Peebles, Dalkeith, Haddington, and Dunbar. 2. Merse and Tiviotdale; presbyteries, Dunse, Chirnside, Kelso, Jedburgh, Selkirk, and Lauder. 3. Dumfries; presbyteries, Middlebie, Lochmaben, Penpont, and Dumfries. 4. Galloway; presbyteries, Kirkcudbright, Wigton, and Stranraer. 5. Glasgow and Ayr; presbyteries, Ayr, Irvine, Paisley, Hamilton, Lanark, Glasgow, and Dumbarton. 6. Argyle; presbyteries, Dunoon, Campbelton, Inverary, Kilmoir, and Skye. 7. Perth; presbyteries, Dunkeld, Perth, Dumblane, Stirling, and Auchterarder. 8. Fife; presbyteries, Dunfermline, Kirkaldy, Cupar, and St Andrew's. 9. Angus and Mearns; presbyteries, Meigle, Dundee, Forfar, Brechin, Aberbrothock, and Fordoun. 10. Aberdeen; presbyteries, Kincardine, Aberdeen, Alford, Garioch, Deer, Turreeff, Fordyce, and Ellon. 11. Moray; presbyteries, Strathbogie, Elgin, Forres, Inverness, Abernethy, and Aberdour. 12. Ross; presbyteries, Chanonry, Tain, Dingwall, and Dornoch. 13. Orkney; presbyteries, Caithness, Orkney, and Shetland. For an account of the most numerous and important body of dissenters in Scotland, see the article *Secession.*

Antiquities.—Some of the antiquities of Scotland are described in the articles relating to the places where they are noticed. Of Roman Antiquities none are more remarkable than the fortified line between Forth and Clyde, called by the different names of *Agricola's wall, Antoninus' wall,* and *Graham's dyke.* The accounts of the commencement and termination of this rampart, at its east and west ends, are different; some making it to commence at Caer-ridden on the Forth, and to terminate on the Clyde at West Kilpatrick,—others making it commence at Kinneil, and terminate at Dunglass; but the difference in length in these cases, is very inconsiderable, not amounting to more than a mile. The whole length is forty Roman, or twenty-seven British miles. The rampart consisted of a ditch, of which the dimensions are not now well known, though it is presumed to have been twelve feet wide. It is supposed that the foundation of this rampart was formed of stone, and that it was, at least in places much exposed to attack, faced with stone. Upon the wall, at different distances, forts were erected. At less considerable distances, turrets were reared for the accommodation of small bodies of troops, employed in the defence of the rampart. Of the larger forts, eighteen are known to have existed, at the distance of about two miles from each other; of the inferior turrets, the number and intermediate distances are unknown. Along the south side of the rampart, a military way was formed for the accommodation of troops passing from one part of it to another. Of this road the vestiges have for the most part disappeared; though in a few places it is still visible. The curious monument on the banks of the Carron, in Stirlingshire, called Arthur's Oven, and supposed to have been a temple of the god Terminus, was destroyed in the last century, for the sake of the materials of which it was built, by the proprietor of the soil. General Roy, and other antiquarians, have investigated, with considerable success, the course of the Roman roads through Scotland; but the existence of them are very inconsiderable, though there are many obvious indications of the camps and stations with which they communicated. Among the thirty-three British cities, specified by Richard of Cirencester, as the most celebrated and conspicuous, three only appear to have been situated in North Britain; these are, Theodosia, Dumbarton; Victoria, Dealgin Ross, Perthshire; and Pororoton, Burghead, Elginshire. Of the remains of Roman camps, that at Ardoch, in Perthshire, supposed to have been that occupied by Agricola, in his fourth campaign, in the year 84, is the most remarkable, and is reckoned the most complete. It appears to have been surrounded by three or four ditches and ramparts. Its length is 1060, its breadth 900 feet; and, according to the ordinary distribution of Roman soldiers in their encampments, it is reckoned to have been sufficient for 26,000 men. The passages across the ramparts to the gates upon the four sides, are still visible; and within the camp, but not exactly in its centre, may be distinguished the *prætorium,* or general's quarters. The camps of the Danes are seen in many places of Scotland, and are distinguished from those of the Romans, by being of a circular form, and generally placed in situations difficult of access. Circles of obelisks, called, by some antiquarians, druidical temples; by others, supposed to be places for the administration of justice among the Gothic nations, are found in several districts; one of the most remarkable is at Uig, in the Isle of Lewis, Ross-shire; it consists of twelve stones, set on one end, about seven feet high, and about six feet distant from each other. The centre is occupied by an obelisk, rising to the height of thirteen feet. At Brechin, and at Abernethy, are circular towers, which have baffled the penetration of the antiquarians, to discover either by whom they were erected, or for what purpose. That at Abernethy is seventy-four feet in height, and forty-eight in circumference, and consists of sixty-four courses of hewn stone. The height of the tower at Brechin is eighty feet; that of an octagonal spire, which surmounts it, is twenty-three feet, making the whole elevation 103 feet. The diameter at the foundation is sixteen feet. Of what have been termed vitrified forts, the most remarkable is that of the hill of Knockfarril, near Dingwall, in Ross-shire. The enclosure is 120 feet long, and forty feet broad. Another is situated on the hill of Craigphadrick, near Inverness, the enclosure eighty paces long, and twenty-seven broad. Similar vestiges are perceived at Dunevan, Nairnshire; at Fordun castle, near Fort Augustus; on the west side of Glenevis, in Lochaber: at the castle of Finhaven, in the county of Angus; on the hill of North, Aberdeenshire; and in many other places. Many specimens remain of the baronial castles of the middle ages, and of the churches and monasteries.

Descriptive Geography.—Scotland may be considered a mountainous country, as it posseses very little of what may be called level land, except those tracts along the courses of its principal streams. Yet it is nationally divided into two distinct portions,—the Highlands and the Lowlands,—although it may, with more propriety, be naturally divided into three parts,—the Northern, the Middle, and the Southern districts. The Northern is separated from the Middle district by the chain of lakes occupying the great valley of Glen-more-na-h'-alabin, and extending from the Firth of Moray to Loch Linnhe. The second, or Middle district, reaches southward to the Firths of Forth and Clyde, now connected by the canal to which those rivers give name; and the Southern district, of course, lies between this line and the English border. The Northern district is almost wholly rugged and mountainous, forming a most irregular surface, inclining from the west towards the north-east and east, on which side, near the coast, are vales and level lands sufficiently fertile to repay the toils of husbandry. The Middle district is likewise extremely mountainous on the west and north, where stretches the rocky spine of the Grampians, almost across the island; but here the flat country is more extensive, sloping on one side of the hills, towards the north, and on the other side, towards the eastern coast. The southern district, though less elevated than the preceding, is by no means destitute of hills, among the chief of which are those of Pentland and Lammermuir. There are also considerable tracts of moss and heath, but the fertile and cultivated portions are of more extent, and the coast on the north-east, the west, and the south, are the principal seats of national industry and commerce, the influence of which extends into the interior of this district, which, as well as the eastern coast of the preceding, is thickly inhabited, and said to contain a larger proportion of cultivated land than many parts of England.

Few countries exhibit a greater diversity of surface and aspect than Scotland. Its mountains vary in extent and altitude, from the swelling hill or spreading upland, the heath-clad height or naked rock, to the mountain ridge of the Grampians, and the snowy peaks of Ben Lawers and Ben Nevis, the loftiest in the island. Wide tracts of moss and moor, sandy plains, deep melancholy glens and valleys, through which rush mountain streams, often forming in their descent grand and beautiful cataracts, and terminating in lakes, some of which are interesting from their picturesque scenery, and some from their vast extent and importance; all contribute to the richness and variety of the prospect. Nor are the milder features of the landscape wanting; for in some parts are fertile cornfields, and verdant meadows and pastures, interspersed with woods and plantations, and exhibiting the effects of human art and industry.

Scarcely any country has its shores indented with so many *bays*, *lochs*, and *inlets* of the sea as Scotland; and such is their extent and variety, that there is no place above forty miles distant from the waters of the ocean. On the eastern side of the kingdom are the firths of Dornoch, Cromarty, and Moray, the last mentioned communicating with the great chain of lakes crossing the kingdom; and the firths of Tay and Forth with their various harbours; and on the south and west sides are Wigton Bay, that of Luce, Loch Ryan, the Harbour of Ayr, the firth of Clyde, with its communicating lochs and inlets, Loch Fine, Loch Linnhe, and a multitude more of various extent and importance.

The chief *rivers* of Scotland are the Forth, the Clyde, the Tay, the Spey, the Dee, the Don, the Tweed, the Annan, and the Nith. It possesses also a number of smaller streams, distinguished by the beauty of the scenery through which they pass. An account of the more important rivers will be found under their respective heads, in this Encyclopedia.

The *lakes* of Scotland are extremely numerous, and some of them of great extent. In beauty and sublimity of scenery, some of them are not to be surpassed. They form, indeed, the most striking and interesting feature in Scottish landscape. Descriptions of the more celebrated will be found either under their proper heads, or under the counties to which they belong. The following table exhibits the superficial extent of a few:—

	Square Miles of Surface.
1. Loch Lomond, Dumbarton and Stirling	45
2. Loch Awe, Argyle	30
3. Loch Ness, Inverness	30
4. Loch Shin, Sutherland	25
5. Loch Mair, Ross	24
6. Loch Tay, Perth	20
7. Loch Arkieg, Inverness	18
8. Loch Shiel, Inverness	16
9. Loch Lochy, Inverness	15
10. Loch Laggan, Inverness	12

The principal ridges of *mountains* in Scotland are those of Ardross, in Ross-shire; the Grampian hills; the Ochil hills, in Perthshire; the Pentland hills, in Lothian; the hills of Lammermuir, in Berwickshire; the great chain of hills between the shires of Lanark and Dumfries; and the Cheviot hills, on the English border; besides which there are several mountain-peaks of great elevation, as Ben Nevis, Ben Hope, Ben Ledi, Ben Lomond, Ben Ivas, Ben Voirlich, Benvenue, Ben More, Ben Lawers, Belrinnes, Cruachan Beinn, Cairn Eilar, Cairn Harrah, Cairn Naple, Cairnsmuir, and Glenquhargen Craig. Ardross is a rugged mountain chain, occupying the central part of Ross-shire, almost destitute of inhabitants. The Grampian hills extend across the centre of Scotland, from the district of Cowal, in Argyleshire, bordering on the Atlantic, to Aberdeen, on the German ocean, whence another ridge diverges in a north-westerly direction, through Aberdeenshire to that of Elgin and the confines of Inverness. These mountains vary in elevation, from 1400 to 3500 feet above the level of the sea, and some peaks are of much greater height. The southern side of the principal ridge declines gradually into a champaign country of great extent and fertility; and the mountains themselves, though often clothed with heath, or consisting of naked rocks, are intersected in numerous directions by winding valleys, watered by limpid streams, and covered by verdant pastures, sheltered by flourishing woods and plantations. There are some deep and narrow defiles, through which the rivers falling from the mountains rush with impetuous force, and form grand and beautiful cataracts. These openings are called passes, some of which were highly dangerous, and scarcely passable before bridges were erected; such are the pass of Lenny, that of Aberfoyle, and the famous passes of Killicranky, and the Spittal of Glenshie. Beyond these defiles are plains of various extent, covered with villages and cultivated fields, amidst expanses of water, fed by a multitude of rivulets, stored with fish of different kinds. The higher levels and more irregular heights of the mountains afford excellent pasture for sheep; and the glens and valleys supply food for numerous herds of black-cattle. The northern side of the Grampian hills is much more rugged than the southern; and there are seen vast masses of rock piled one upon another. To this range belongs the Cairngorum, or Blue Mountain, situated in the parish of Abernethy, between the shires of Banff and Elgin, of a conical figure, having its summit, which is 4050 feet above the level of the sea, generally covered with snow. The Binnabaird, in Aberdeenshire, and some of the heights in the shires of Perth and Forfar, are among the loftiest peaks of the Grampians. The lofty range, called the Ochil Hills, extends from the parish of Dumblane, in Perthshire, into the county of Fife. These mountains are covered to their summits with verdure, and overspread with flocks and herds; and the intervening glens and hollows are watered by streams, stealing gently through them, or rushing with noisy violence from the precipitous cliffs; while in various parts are villages, farms, and cottages, sometimes skirted and sometimes enclosed with woods. The highest hill is Bencloch, or Bencleugh, the head of which is 2420 feet above the level of the sea. The Pentland hills extend from the vicinity of Edinburgh westward to the borders of Clydesdale. The termination of this range towards the east is somewhat abrupt; and on the north side the surface of the rock, when viewed from a distance, appears of a bright white hue, at the height of 1460 feet above the level of the sea. The hills of Lammermuir, or Lammermoor, consist of an elevated tract of moorland, stretching from Dunglass, in Haddingtonshire, and Coldingham, in Berwickshire, on the east, to Soutra Hill, in the western part of the former county, and having a breadth of from thirty to forty miles. They are interspersed with well-watered vales and glens; and the whole district is generally appropriated to the feeding of sheep; turnips, &c. being raised in the cultivated parts for their support during the depth of winter. The mountainous ridge on the borders of the shires of Lanark and Dumfries, forms part of a waving line of hills, connected with the mountains of Carrick on the west, and with those of Selkirkshire and Lammermuir on the east. The Cheviot Hills extend along the south-east border of Roxburghshire; and connected with them, on the north, are Cocklaw, Ruberslaw, the Wisp, the Dunian, and other mountain heights. Ben Nevis, situated northward of the great chain of the Grampians, in the parish of Kilmallie, Inverness-shire, is the highest mountain in Great Britain, its summit being 4370 feet above the level of the sea. Ben Lawers, near Kenmore, in Perthshire, is a conical peak, the top of which is 4015 feet above the sea; and Ben Ivas, or Wyvis, in the parish of Fodderty, Ross-shire; Ben More, near Loch Dochart, in Perthshire; and Cairn Eilar, or the Hill of Eagles, at the junction of the counties of Perth, Inverness, and Aberdeen, are of a height somewhat inferior to that of Ben Lawers.

The *valleys* of Scotland claim attention next to her mountains. Many of them are intersected by rivers and lakes, and exhibit the most picturesque scenery. Stretching transversely across the island, from sea to sea, is the Great Glen of Caledonia, with its chain of lakes, now connected so as to form the Caledonian Canal; Strathmore, or the Great valley, traverses the kingdom from Stonehaven in Kincardineshire to the district of Cowal in Argyleshire, between the Grampian hills on the north, and the Sidlaws, Ochils and Lennox hills on the south; and another great but irregular valley extends from the Moss of Kincardine in Perthshire, south of the river Teith, to Clydesdale in Lanarkshire, chiefly lying between the Forth and the Clyde, and traversed from east to west by the canal which unites those rivers. The Carse of Gowrie, in Perthshire, is a fine tract of vale land; and the straths and glens of limited extent are numerous, including the fruitful districts of Strathblane in the shires of Stirling and Dumbarton, Stratherne in that of Perth, Glendevon in the same county, Glenorchay in Argyleshire, Glenbervie in Kincardineshire, and Glenkens in the stewartry of Kirkcudbright, watered by the streams from which they respectively derive their appellations. The level tracts, called moors and mosses, generally barren, unless where the land has been reclaimed by human industry, are more numerous, and cover a wider extent of surface, than those in South Britain. Some of these wastes have been rendered very productive, by the operations of skill and enterprise.

Scotland is divided into thirty-three counties, of very unequal sizes. Some of the larger shires were originally provinces, and others of smaller extent, sheriffwicks, an appellation sometimes yet retained. The various shires will be found described under their proper heads. The following table exhibits the extent of the several counties of Scotland. It was constructed from Arrowsmith's large map of Scotland, by Mr Jardine and Sir George Stuart Mackenzie. The map of Scotland constructed by Arrowsmith, is perhaps the best that has hitherto been published. It does contain a few errors in the position of places, and a few in the courses of rivers, but none have yet been discovered that can affect the present calculation in any material degree. On the whole, the table may be regarded as the nearest approximation to truth hitherto attempted. By the term *water*, mentioned in the subsequent table, is to be understood only the *fresh* water of lochs; that of rivers and salt water firths not being included :—

Counties.	English Square Miles.	English Acres.	Scotch Acres.
Aberdeen,	1,934·50	1,238,080	981,580
Argyle,			
Mainland,	2,212·84	1,415,898	1,122.559
Islands,	785·65	502.816	398,645
Water,	32·11	20,554	16.395
Ayr,	1,042·01	666,886	528.724
Banff.	632·60	404,864	320,986
Berwick,	478·52	306,258	242.805
Bute,	153·98	98,547	78,131
Caithness,			
Land,	737·79	472,186	374.360
Water,	6·45	4,128	3,275
Cromarty,			
Land,	258·88	162,451	128,795
Water,	8·57	5,485	4 848
Clackmannan,	52·55	33,632	26,664
Dumfries,	1,271.40	813,696	645,118
Dumbarton,			
Land,	246·17	157,549	124.909
Water,	32·54	20.826	16,511
Edinburgh,	387·49	247,994	196,635
Elgin,	472·02	302,093	239,507
Fife,	521·44	333,722	263,593
Forfar,	977·97	625,901	496,230
Haddington,	290·96	186,214	147,635
Inverness,			
Mainland,	2,726 65	1,745,056	1,383,524
Islands,	1,035·00	662 400	525,167
Water,	83·79	53.626	42.496
Kincardine,	400·91	256,582	203,425
Kinross,			
Land,	83·83	53,752	42.536
Water,	77·07	49,325	39,106
Kirkcudbright,	814·51	521,286	413 289
Lanark,	993·61	635,910	504,166
Linlithgow,	134·27	85,933	68,130
Nairn,	196·65	125,856	99,782
Orkney, *			
Land,	313·75	200,800	159,199
Water,	9·15	5,856	4,643
Shetland Islands,	516·62	330,637	262.137
Peebles,	347·10	222,144	176,121
Perth,			
Land,	2,830·80	1,811,392	1,436,116
Water,	33·58	21,491	17,039
Renfrew,	232·49	148,794	117,967
Ross,			
Mainland,	2,033·98	1,301,747	1,032.057
Islands,	561·17	359,149	284,742
Water,	39·42	25,229	20,002
Roxburgh,	725·81	464,518	368.282
Selkirk,	265·91	170,182	134,925
Stirling,	532·33	340,691	270,108
Sutherland,			
Land,	1,865·53	1,193,939	946,585
Water,	37·86	24,230	19,210
Wigton,	442·78	283,379	224,670
Total, Land,	29,510·87	18,888,894	14,957,406
Total, Water,	360·13	230,758	183,523
Total.	29,871·00	19,119,652	15,140,929

* Orkney and Shetland form only one county.

Natural productions.—The most plentiful minerals of Scotland are lead, iron, and coal. The lead mines are in the south of Lanarkshire and in Dumfries-shire. A mine of silver was formerly opened in the Ochils; but it now furnishes only cobalt. A small portion of silver is found in the ore of Scottish lead. Copper has been found in different places, but in small quantities. Mercury is not unknown; but the quantity procured is very inconsiderable. A productive mine of antimony has been opened in Dumfries-shire. Iron is found in many places; and the quantity is such, as to supply several of the greatest works any where to be seen. The quantity of iron manufactured at Carron alone is very great. Coal is not less plentiful than iron, forming a source of wealth to the country, and greatly aiding the manufacturer in many of his undertakings. It is supposed that the largest untouched field of coal in Europe exists in Scotland, in that singular tract of barren country in Carluke and Cambusnethan parishes, on the north of the Clyde; from thence continuing, at intervals, as far as Douglas parishes, Glenbuck and Muirkirk in Ayrshire, and thence to the town of Ayr. The

Cleugh, or Wilsontown, in Lanarkshire, is the south-east of this extensive coal field, is excluded by the Shotts hills, but extends on the west, along the basin of Clyde. As it is supposed by some experienced mineralogists, that the whole of the coal between the Forth and Clyde will be exhausted in forty years, this inexhaustible supply will be of the greatest importance. Little coal has hitherto been found in the northern parts of Scotland; but whether the search has been properly made seems to be more uncertain. How long this mineral has been worked is uncertain. Pope Pius II., in his description of Europe, written about the year 1450, mentions his astonishment at beholding black stones, so he denominates coals, given as alms to the poor of Scotland. But this mineral may be traced to the twelfth century. The Lothians and Fifeshire abound with coal, which also extends along the Ayrshire coast and Renfrewshire. The great coal tract along the Clyde is in the form of an isosceles triangle, the vertex or top being near Glasgow, and the base towards Carluke, the length being twenty-two miles. Among other Scottish minerals are bismuth, manganese, wolfram, plumbago, and zinc. Marble of various colours, and susceptible of the highest polish, is to be found in many places. Fine statuary marble is found in Assynt and Blair Gowrie, in Perthshire. Fine black marble is found near Fort William, and is fretted with white, like lace-work; and dark brown, mixed with white, occurs in Cambuslang parish, Clydesdale. Jasper is found in various parts; a curious variety is presented at Arthur's Seat, and on the western shore of Icolmkill are many curious pebbles of various descriptions. Fullers-earth is found in Kintyre; and it is supposed that there is a vast mass of talc in the mountains, originating in the Findhorn river, as large pebbles of it are sometimes found in that stream. Agates, garnets, and Cornelians, or Scotch rubies, are abundant, and are no where surpassed in beauty and variety. Chalcedony is found in Fife, and in large masses on the hill near Langholm, and is equal in hardness and water to the Oriental. Most of the mountains belonging to the Grampian chain are granite. According to Williams, the lofty Ben-nevis is one solid mass of red granite, which he traced, at the base, for four miles along the course of a rivulet. The elevation of this mass he computes at 2,600 feet, and above it are stratified rocks, so hard and tough that wrought iron falls short of them. The granite of this mountain is said to equal the Egyptian in beauty. From Portsoy to Trouphead are found vast masses of that singular kind of granite called Moses' tables, which, when polished, resembles Hebrew characters, on a white ground. Whether gems and precious stones, properly so called, are found in Scotland, is yet dubious, because quartz and fluor spar assume various hues; and what are called sapphires, rubies, and emeralds, fall under one or other of these descriptions, while the real gems belong to the argillaceous class, and when minutely examined, consist of very thin layers, a form peculiar to the argillaceous class. However this be, what are called sapphires are found in different places, of various shades, from a deep red to a transparent white, and equal in hardness to the Oriental. The topaz is found in many of the Highland mountains, particularly the Cairngorm, and in Goatfell, in Arran; they are generally called Cairngorm stones, from the mountain of that name, and are of various hues, and in hexahedral crystals. The ruby and hyacinth are found near Ely, in Fifeshire, but of inferior lustre and small size. Emeralds are found in several places, and amethysts are pretty frequently to be met with, particularly in the mountain Lochnagaraid, in Aberdeenshire; some of them an inch in diameter, of a good colour, and worth from thirty to forty guineas each. Freestone and limestone every where abound. Mineral waters are numerous. The chief are Aithrey, Dumblane, and Pitcaithly, in Perthshire; Moffat wells, in the south; and Peterhead, in the north.

The wild animals of Scotland are the fox, the badger, the otter, the wild-cat, the hedgehog, the stag, the wild roe, the hare, the rabbit, the weasel, and other small quadrupeds. Formerly Scotland was also the abode of the wolf, the beaver, and the wild ox, but they are now extinct, with the exception of some of the latter still retained in the duke of Hamilton's parks. The domestic animals are the same as those of England; but the native breed of black cattle and sheep is considerably different, being smaller in size and reputed to afford more delicious meat. The Galloway and Shetland ponies, and the colley, or true shepherd's dog, of the unmixed breed, are peculiar to Scotland. Numerous species of the feathered tribes are found here. Pheasants are met with in the woody districts, but they are not common: that beautiful bird called the capercailzie, or cock of the wood, is become exceedingly rare; the ptarmigan, the black cock, and the grouse, or red game, are abundant on the heathy mountains; and in the low grounds are found the partridge, plover, snipe, and others which affords diversion to the sportsman. Most of the English singing-birds visit Scotland, except the nightingale. The coasts and islands are frequented by multitudes of aquatic birds, the eggs and feathers of some species of which are articles of importance to the islanders for food and commerce. Among these sea-fowl are the great hawk, larger than a common goose; the gannet, or solan goose, *(Anser Bernicla)*, the fulmer, or fullumar, a kind of gull, remarkable for the quantity of oil procured from it; the lamhi, or guillemot; the falk, or razorbill; the buigir, or coulterneb; the wild swan *(Cygnus ferus)*: the tufted duck *(Fuligula cristata)*; the eider duck, so famous for its light down; and many kindred species. Here also are found various kinds of eagles, falcons, and hawks. The Scottish rivers and lakes abound with the most delicate sorts of fish; and in the surrounding seas are caught great quantities of herrings, mackerel, sturgeon, cod, haddocks, whiting, turbot, skate, and other edible fish; and among those which are taken for the sake of the oil which they furnish, may be mentioned the sun-fish, or cearban. Whales are sometimes cast ashore on the Hebrides, the Orkneys, and the Shetland Isles, and even occasionally appear in the northern bays and firths.

Agriculture.—Scotland was far behind England in cultivation till the middle of the last century. Before that time, and for a considerable period later, farms were mostly small, and tilled in a slovenly manner, with half-starved horses, four of which were yoked in the plough, while parts of each farm were alternately cultivated or left waste, upon the rude plan of infield and outfield. In 1723, Mr Cockburn, of Ormiston, East Lothian, to whom the agriculture of Scotland is much indebted, formed an agricultural society, which exerted itself with considerable success in introducing cultivated herbage and turnips, as well as in improving on the former methods of culture; but the society was broken up by the commotions attendant on the rebellion of 1745. The abrogating the feudal system in 1748, and the relaxing the rigour of entails, greatly benefited the agriculture of Scotland. The last was effected by an act in 1770, and extended the powers of proprietors, in so far as regards the improvement of their estates and the granting of leases. It was now found beneficial to grant long leases, generally of nineteen years, which greatly increased the skill and industry of the tenants, by rendering them secure of enjoying the benefits of their improvements. A great stimulus was also given to farmers by the rapid rise in the manufactures and commerce of the country, which caused an increased circulation of money and an advance of price on grain. The farmers now of the lowlands generally, but particularly of the Lothians and the carse of Gowrie, made a complete reform in the whole train of their agricultural operations. They brought extensive tracts of common and waste under cultivation, reduced the number of cattle, and improved the breed; cultivated the artificial grasses, and adopted the use of machinery, of which the most important, the threshing machine, was entirely of Scottish invention. In the mountainous districts, also, a new system was introduced. The numerous little farms, hitherto held by tenants or vassals, were thrown into extensive sheep walks. This, whether profitable to the proprietors or not, was heart-breaking to a brave and warm-hearted race, who were forced to quit their native glens, to which they were strongly attached, and to seek support beyond the Atlantic.

In arable husbandry, the farmers of Scotland now greatly surpass those of England; yet owing to the mountainous character of the country, the cultivated lands are but limited. Of 18,944,000 acres, its computed extent of land, only 5,043,000 are reported as under regular cultivation. The Board of Agriculture, in their report, do not calculate more than 1,800,000 acres actually under grain. Of these, only 140,000 produce wheat. Oats, a hardy plant, and adapted to cold climates, is the staple produce: it covers 1,260,000 acres. Barley occupies 280,000, being raised chiefly for distillation; but in the higher districts, it is not barley proper, but that ruder species called bear or big. Flax is raised in some of the higher lands. Such has been the extent and value of the agricultural improvements of Scotland within the last half century, that the country could now supply her whole population with food without importation of corn, while the exports of her manufactured goods pay for all foreign luxuries, and leave a heavy balance in her favour. What is remarkable, Scotland both exports and imports nearly the same kind of grain, and, deducting the one from the other, it appears that she is annually indebted to England and Ireland for 120,000 quarters of barley, and 180,000 of oats, while, on the other hand, she sends these countries 60,000 quarters of wheat. There being from three to four millions of bushels of malt made yearly in Scotland, chiefly for the whisky distilleries, the great demand for barley is accounted for. See the articles *Agriculture* and *Britain;* also, the different counties of Scotland, under their proper heads.

Manufactures and Commerce.—The commerce of Scotland was considerable in the reign of Robert I., and several arrangements relative to the trade with Holland and Flanders were made by that prince with William, earl of Holland. In 1541, Maximilian, duke of Burgundy, granted to the Scots the port of Campvere, in Zealand, as their staple, with ample privileges, under the especial protection of a conservator. An extensive trade was carried on with France during several centuries: but this nearly ceased after the union with England. From that time till about the middle of the last century, the trade of Scotland was comparatively inconsiderable; but, subsequently, a revival took place of the commerce and manufactures of the country; an extensive intercourse was carried on with North America and the West Indies, and with the European nations in general, especially with the Dutch, and those on the coasts of the Baltic: since that period the exports and imports have more than quadrupled.

The manufactures of Scotland exhibit great variety. Flax and hemp are manufactured into different kinds of fabrics, such as sheetings, osnaburghs, bagging, and canvass. The cotton manufactures have been carried, by means of machinery, to a great degree of extent and perfection. Muslins, brocades, lappets of all sorts, imitation shawls, gauzes, spidered, seeded, and numerous species of draw-loom, cambrics, shirtings, sheetings, stripes, checks, pullicates, ginghams, shawls, &c., are manufactured. Cotton is also made into thread, of which large quantities are exported. Glasgow, Paisley, and the surrounding districts, are the chief seats of the cotton manufacture, which gives employment to 150,000 persons, and of which the annual value is £6,000,000 sterling. Calico-printing is also carried to a great extent. The great ironworks established in Scotland deserve particular attention, and that at Carron, near Falkirk, is the largest manufactory in Europe. Ship-building also forms an important branch of national industry; and there are manufactories of glass for all the different sorts of bottle, window, and flint glass; also of soap, candles, and starch, salt, &c. There are tanneries, breweries, and distilleries, and almost all articles of ordinary use are manufactured in Scotland. The whole manufacturing product is estimated to exceed in value £14,000,000 sterling (including the raw material), employing nearly 300,000 persons. The different fisheries have been prosecuted with great industry and success. The whale fishery, to Davis's straits and Greenland, employs a great number of ships. The white fishery is also prosecuted with great industry along the Moray firth, Shetland, and the Western islands, and yields profitable returns. The herring fishery is carried on along the whole coast of the kingdom with great success, as is also the salmon fishery in all the different rivers. From the ports on the eastern coast of Scotland, a great trade is carried on to Holland, Norway, Sweden, and the different states on the Baltic. This trade has greatly increased of late years. The imports principally consist of flax, hemp, yarn, linen, iron, corn, wood, tallow, and other commodities produced in these countries; and, in return, colonial produce, cotton goods, and other manufactured articles, are exported. The chief shipping ports are Leith, Dundee, Arbroath, Montrose, Aberdeen, Peterhead, Banff, and Inverness. The trade with Spain, Portugal, and the Mediterranean, is carried on from Leith and other ports; and the connexion with Canada extends to all the most considerable towns on the east coast of Scotland. The commerce of the west coast centres almost entirely in the Clyde, which is the grand emporium of the American, West Indian, and South American trade. The chief shipping ports on this coast are Glasgow, Port-Glasgow, and Greenock. The principal canals—the Caledonian canal, the Forth and Clyde canal, &c.—are described in the article *Canal*, under the division *Canals of Great Britain.*

The increase which has taken place in recent times in the trade and manufactures of Scotland, has been more rapid and astonishing than is observable in any other part of Europe. Looking back to the year 1656, we find that the whole vessels belonging to the country amounted only to 137, carrying 5736 tons. Of this number, Glasgow had no more than 12, of a burden of from 12 to 150 tons. At the Union in 1707, the shipping of Scotland had risen to 215 vessels, carrying 14,485 tons. In 1760, the number of ships employed in the fisheries, and in foreign and coasting trade, amounted to 999, carrying 53,913 tons; and in 1800, the shipping amounted to the more respectable number of 2415, carrying 171,728 tons, and employing 14,820 men.

It appears by a parliamentary paper, that in 1828, the number of vessels belonging to Scotland under 100 tons was 2160, and the number above 100 tons 983—total 3143, the total amount of registered tonnage of which was 300,836. We thus find, that from the Union till 1828, the shipping of Scotland rose from 215 to 3143 vessels, being a multiplication of about fourteen and a half times within the period of 121 years. By a table in the parliamentary paper it also appears that Aberdeen owns the greatest amount of tonnage of any port in Scotland. Its tonnage is 46,587, that of Greenock 37,786, Glasgow 36,220, Leith 26,107, and Dundee 24,227. But this does not give a certain idea of the comparative amount of traffic carried on at these ports, for they employ the shipping of one another, and freight the vessels of inferior ports. In 1755, the imports into Scotland, in round numbers, were £465,411, and the exports £535,576: in 1825, the imports had increased to £4,994,304, and the exports to £5,842,269.

It was some years ago calculated by Sir John Sinclair, that the whole amount of manufactures in Scotland annually exceeded in value £14,000,000 sterling including the price of the raw materials. The value of the mineral productions, such as coal, lime, iron, lead, &c., he calculated at £1,597,653, 6s. 8d. The fisheries he reckoned at £1,300,000, and the gross produce of land at £23,261,155, 10s. The rise in the amount of population in Scotland, though steadily progressive since the Union, has not kept pace with the increase of trade and manufactures; consequently the present population must be much more wealthy than their predecessors 120 years since. In 1700, the population of Scotland was 1,048,000; in 1801, the commencement of the government census, it was 1,599,068; in 1811, 1,805,688; in 1821, 2,093,456; in 1831, 2,365,114; and in 1841, 2,620,184, having thus doubled itself by more than half a million in the space of 141 years, notwithstanding the vast emigration that was constantly going on to various parts of the world. For more minute details regarding commerce and manufactures, see *Cotton Manufacture* and *Iron Manufacture;* also *Britain, Glasgow, Paisley, Dundee, Greenock*, &c.

Political Constitution.—The ancient constitution of the Scottish government is involved in doubt and obscurity; and the respective limits of the royal power and that of the Highland chiefs and barons seem to have been so various and uncertain as to render it probable that they were liable to the influence of accidental circumstances. Much depended on the personal character of those in authority. It was ever the policy of the wisest Scottish kings to restrict the authority of their nobles, and though the struggles thus occasioned were the cause of much misery and bloodshed, yet this course was rendered necessary by the dangerous ambition and ruthless tyranny of the nobles, who often threatened to overthrow the monarchy, and severely oppressed their vassals. In the conflicts for power, some of the kings perished by the hand of violence, and many of the turbulent barons became the victims of their own conspiracies, or the treachery of others, and their order was thinned by proscriptions, assassinations, and judicial executions. These internal commotions, however, ultimately freed the sovereigns from the overwhelming influence of the aristocracy, and restraining the spirit of feudal oppression, made way for the introduction of order, just laws, and a more tranquil administration of government. The parliament of Scotland anciently comprised all who held any portion of land, however small, from the crown, by tenure of military service, till the reign of James I., when the small barons or freeholders were excused from attendance in person, "two or more wise men" being deputed from each county in proportion to its size. It regulated the periods of its meeting and adjournment, and the formation of committees to superintend the administration when the sessions were included. Its powers extended to the executive departments, as the appropriation of public money, and the appointment of treasurers of the exchequer, the levying of troops, and nomination of commanders, the sending of ambassadors to foreign states, and the appointment of judges and officers of state. Parliament could restrain grants from the crown, or alienate portions of the royal demesne; and it assumed the right of bestowing pardons on criminals. The king did not possess even a negative authority over the proceedings of this assembly, without whose concurrence he could neither declare war, make peace, nor transact the most important affairs of the nation; and even so late as the reign of James IV., the parliament pointed out to that monarch his duty as the first servant of the people. But the supreme power, though thus nominally resident in the parliament, was virtually in the king, who by his influence often entirely controlled its proceedings. The parliament in the whole consisted of three estates, the nobility, the dignified clergy, and the lesser barons, or representatives of shires and burghs. The patronage of benefices gave the king a complete influence over the churchmen, whose numbers were equal to those of the lay nobles, and among the commons a majority might generally be found who were dependents of the sovereign. Every measure brought before parliament was previously prepared by a committee, styled the lords of the articles, chosen from each of the three orders, and these by the mode of their election were in effect little better than royal nominees. This institution seems to have been introduced gradually, and it is not certain when or in what manner it originated, but there are traces of the existence of such a committee as early as the beginning of the reign of James I. Before the Union there were four great officers of state; the lord high chancellor, the high treasurer, the lord privy seal, and the secretary; and there were also four lesser officers; the lord clerk register, the lord advocate, the treasurer depute, and the justice clerk; all which officers, in virtue of their offices, had seats in the Scottish parliaments. Since the Union none of those officers are retained except the lord privy seal, lord clerk register, lord advocate, and justice clerk. The great officers of the crown were, the lord high chamberlain, lord high constable, lord high admiral, and lord marshal, the royal standard bearer, the lord justice general, and the lord chief baron of the exchequer. There were besides many other officers, both of the crown and state, now extinct. The office of lyon king at arms, or grand herald of Scotland, is still retained. This officer, formerly vested with great splendour and importance, used to be crowned in parliament with a golden circle, and he was armed with the authority of the civil law. Previously to the era of the revolution, the privy council of Scotland assumed inquisitorial powers, and even torture was administered under the sanction of its authority; but it is now entirely merged in the privy council of Great Britain. The number of peers in the Scottish parliament was latterly 160, and of Commons 155. The latter were divided into members or commissioners (as they were called) for shires and burghs, and all sat in one house, and voted promiscuously.

At the union of the kingdoms, the political system of Scotland was almost entirely incorporated with that of England. The representation allowed to Scotland was extremely small. It consisted, for the house of commons, of forty-five members, fifteen from the burghs and thirty from the counties. The burghs, however, amounting by the ancient constitution to sixty-six, were divided into classes of four or five, one member being returned by the majority of each class. Edinburgh alone returned one member. The members were elected not by the inhabitants as burgesses, but by the magistrates, who themselves were appointed chiefly by their predecessors in office; thus constituting close burghs, in which a party once obtaining a majority, might retain it for any length of time, with little regard to the wishes of their fellow-citizens. In county elections, the right of voting was attached to the possession of lands held immediately of the crown, and of the valued rent of £400 Scots. But the feudal superiority which entitled to vote was separable from the actual possession of the property. The original proprietor, who, perhaps, had a number of these votes on his estate, might either sell or distribute them among his friends, so as to multiply his own elective influence. The freeholders of Scotland amounted to not quite 3000, of whom a certain number, for the reason stated, had no real property in land. The peers of Scotland are represented by sixteen of their number, elected at the commencement of each parliament. There are besides about thirty-five who are British peers, and who sit in their own personal right.

By the reform bill of 1832, the representatives of Scotland were increased to only fifty-three, notwithstanding the immense strides the country had made in wealth and political importance since the Union. The representatives are thirty for counties, and twenty-three for cities and burghs. (See a table in the article *Britain* for a list of the returning counties and burghs, and their constituencies.) The representatives for burghs are returned, not as formerly, by the town councils, but by every inhabitant paying rent to the value of £10 and upwards, and by proprietors to the same amount. The power of voting in counties, too, is attached, not to feudal superiorities, that were often fictitious, but to the possession of actual property yielding £10 yearly rent, or to the occupying of lands or tenements at a rent of not less than £50 per annum.

Revenue.—The revenue drawn from Scotland, taking its population and the expense of its government into account, exceeds that of England or Ireland. (See the articles *Britain* and *England.*) Formerly the revenue of Scotland was collected separately from that of England; but, under recent regulations, the whole has been placed under the direction of boards resident in London, and the systems have been in a great measure incorporated together. In the year ending 5th Jan. 1831,

The Scottish Excise was, . .	£2,395,490
Customs, . . .	1,357.000
Stamps, ...	526,000
Assessed Taxes, . .	292,000
Post Office, . . .	201,000
	£4,771,490

Nothing demonstrates the peaceful and prosperous state of Scotland, in comparison with the unhappy state of Ireland, more forcibly than a glance at their several revenues and expences. The revenue of Ireland in 1828 was £4,685,642, collected at an expense of £13, 16s. 3d. per cent.; that of Scotland, containing not one-third of the inhabitants, was £4,627,340, collected at an expense of £6,7s.3d. per cent. In 1830 the cost of judicial establishments alone in Ireland was £600,000. In Scotland in the same year, the total expense was only £150,251. In ten years, 1823 to 1833, Ireland received of public money, no less than £3,179,130; Scotland only £256,922, or the fifteenth part o the money. The sneers, which we so often hear about the poverty and rapacity of Scotland, can scarcely be repeated before such facts as these.

Jurisprudence.—The laws of Scotland are founded on a very ancient book, entitled the *Regiam Majestatem*, which again is founded on the Roman law. Regarding the authorship and age of this book, there has been much dispute. Some assert it to have been compiled by order of David I. of Scotland, and others by order of Edward I. of England. with the view of assimilating the Scotch with the English law. The *Regiam Majestatem* was the only written law of the kingdom, until James I. attempted to superadd the enactments of parliament. These enactments, though ultimately the cause of superseding the *Regiam*, were formed on the model of that work, and thus the principles of the Roman law formed the bases on which almost all Scottish municipal law is built. Upon the distinctive character of the Scottish system of jurisprudence, it is impossible to enter in a limited section like this. We can only refer to the works of Mackenzie, Erskine, Stair, Hume, Bell, and other Scottish lawyers, who have all written luminously on the subject, and by their works simplified an otherwise complex judicial code.

The supreme civil court of Scotland, is the court of session or college of justice, established by James V. in 1532, to supply the place of an ambulatory committee of parliament, called the lords of council and session. It consisted of fourteen judges and a president; but in 1807, for the despatch of business, the court was divided into two chambers, the one consisting of eight, and the other of seven judges. These have been recently reduced to six and seven, making the whole in number thirteen.

There lies an appeal, in every civil case, from the court of session to the house of lords, whose judgment is supposed to be generally guided by the opinion of the lord chancellor. In 1815, trial by jury, in civil cases, was introduced, and conducted before a separate court, called the jury court, presided by a lord chief commissioner. This, too, has been recently abolished, and these trials are now carried on under the direction of the court of session. The court of exchequer, which consisted once of five barons, was first reduced to three, and is now abolished; one lord of session is to devote one day of the week to the trial of causes belonging to its jurisdiction. The consistory and the admiralty courts have been abolished, and their jurisdiction transferred to the court of session. All these changes have sadly dimmed the juridical glories of Edinburgh, and tended to wound the national feeling, considering that they were accompanied by no corresponding change in the courts of the sister capitals, some of which lay much more open to reform or more worthy of extinction.

The high court of justiciary is the supreme criminal court in Scotland. It consists of six judges, who are also lords of session, the lord justice clerk presiding. Of the court sitting in Edinburgh three are a quorum. On the circuits, two judges travel together, but one can sit alone. Circuit courts are held in all the districts twice a year, except in Glasgow, which has now three circuit courts a year. The trials are by jury. The jury's number is fifteen; a majority decide the verdict. There is no appeal from the court of justiciary to any other tribunal.

Sheriffs of counties are competent to try housebreaking, theft, and other minor crimes, but neither treason, robbery, rape, murder, nor fire-raising. They cannot transport, but may try capitally, a power now never exercised. Justices of the peace have a criminal jurisdiction in riots, breaches of the peace, poaching, &c.

The *lord advocate* is virtually the minister of the crown for Scotland. He is the public prosecutor of all crimes coming before the court of justiciary. The *solicitor general* is virtually the lord advocate's coadjutor and substitute. The lord advocate has three deputies, called *advocates depute*, who act under him with full powers. The Scottish bar is called the *faculty of advocates*, who have an exclusive right to practise in the supreme court. The *writers to the signet* are the first order of attornies in Scotland. They have the sole right to use the royal signet in writs. There are also *solicitors before the supreme court*, and inferior courts have their own procurators or solicitors.

Language.—The Gaelic or *Erse* (that is, *Irish*) is spoken in the Highlands of Scotland, particularly in the Hebrides and the western and inland parts of Argyle, Inverness, Ross, and Sutherland. English, however, is now very generally understood throughout the Highlands, and threatens, indeed, ultimately to supplant the original language—a circumstance which, however unavoidable, is not to be viewed without regret, when we consider the high antiquity of the Celtic tongue, and that here is the last stronghold where it is to be found in comparative purity.

Throughout the Lowlands, a mixture of Scotch and English is spoken. The English is universally understood, and is generally kept by in good society; yet no Scotsman of sense disdains to draw occasionally, in conversation, on the rich stores of his mother tongue. It is disputed whether the Scotch be really a distinct language, or merely a corruption of the English or Anglo-Saxon. Dr Jamieson, who has examined this subject with great learning and industry, contends that the language of the lowlands of Scotland is as much a separate language as the English, and that its basis, like that of the English, is Teutonic, with a strong mixture of Gaelic or French. To establish this point, he endeavours to prove that the Picts were a Teutonic race, who invaded Scotland about the same time that England was overrun by the Anglo-Saxons. They colonized, he conceives, the whole of the low country, while the Gaelic population, like the Welsh, sought for refuge amid the fastnesses of their mountains. He corroborates these views by facts drawn from history, and considers that no other satisfactory account can be given of the introduction of the common language into Scotland.

Without insisting that the Scotch is a distinct language independent of the English, we conceive that it would be doing it injustice to call it either a dialect of the English or a corruption of the English. No dialect ever abounded with so many words independent of its original—no mere dialect was ever capable of rising above the vulgar, like the Scotch, into the plaintive, the tender, the sublime. As to its being a corruption of the English, some mistake may arise here from confounding Scotticisms with Scotch words. To say, "sit *into* the fire," for "sit *near* the fire," is a Scotticism and a corruption of English; but to use the word *ingle*, instead of *fire*, is not to corrupt the English, or commit a Scotticism, but is simply to use a Scotch word, which has as good a right to be heard as its English counterpart. This distinction is so little attended to, that it is not uncommon to see, in English grammars, "lists of Scotticisms," in which you often find, not Scotticisms, but mere Scotch words, an absurdity which, if carried out with consistency, would embrace the whole of Dr Jamieson's dictionary, in four quarto volumes, including supplement.

The Scottish language is characterized by copiousness and power of expression. Its copiousness is manifest from the number of terms it possesses to express the same thing under the minutest shades of difference, and its power appears from the number of single words it contains, which individually convey an extent and energy of meaning that most modern languages can but imperfectly translate even by a circumlocution. From its disposition to throw out consonants, and produce a concourse of vowels, it is eminently fitted for the melodious and pathetic; while the native strength of its character renders it, when necessary, powerful in the humorous, and terrible in the sarcastic.

Literature.—Scotland has long been distinguished for the prominent place she has taken in almost every department of literature. Even in semi-barbarous times, she cultivated the muses with success. Thomas the Rhymer (see *Rhymer*) stands first, in point of time, on the list of old Scottish poets, and even preceded, by a hundred years, any English poet whose works are extant. John Barbour, the author of the Bruce, was no unworthy contemporary of the great Chaucer. About the same time flourished Andrew Wynton, a rhyming chronicler; and somewhat later, Henry the minstrel celebrated the deeds of Wallace in a style of elegance, from which the modern versions of his works have sadly departed. James I., who reigned in the early part of the fifteenth century, has left in his "Quair," or Book, a beautiful specimen of his poetical talents. Farther down, we come to Dunbar, undoubtedly the greatest of old Scottish poets; and among his contemporaries we have Henryson, Kennedy, and others of merit. Gavin Douglas, Sir David Lindsay, Bellenden, Alexander Scot, Alexander Montgomery, all follow in succession, until we reach king James the VI., himself no mean "prentice" in the art of poetry.

After king James' accession to the throne of England, Latin and English verses were chiefly cultivated in Scotland, until Allan Ramsay arose, and restored to new and vigorous life the muse of his country. Fergusson, Burns, Hector Macneil, and James Hogg, close, for the present, the list of the more prominent names of those who have distinguished themselves in Scottish verse. But in other strains beyond the vernacular tongue have Scotsmen been eminent. In Latin verse Buchanan has found no equal in modern times; nor has Arthur Johnston been greatly surpassed; while the publication of the *Deliciæ Poetarum Scotorum*, a collection of Latin poems by various Scottish gentlemen, reflects great credit on the learned taste of Scotland during the early part of the seventeenth century. In English poetry, Scotland can name Drummond of Hawthornden, Thomson, Mallet, Armstrong, Arbuthnot, Mickle, Beattie, Blair, John Home, Scott, Campbell, and many others of minor note. In history she has a bright galaxy—Buchanan, Burnett, Spotiswood, Hume, Robertson, Ferguson, Dr Henry, Stuart, Laing. In philosophical and metaphysical disquisition—Hume, Smith, Reid, Beattie, Oswald, Campbell, Lord Kames, Lord Monboddo, Dugald Stewart, Thomas Brown, Sir James Mackintosh. In mathematical and physical science and the practical arts—Napier of Merchiston, the Gregories, Maclaurin, Stone, Simson, Black, Hutton, Robison, Playfair, Ivory, Leslie, James Watt, Murdoch, Rennie, Telford. In medicine and anatomy—Pitcairn, Arbuthnot, Munro, Duncan, Cullen, the Hunters, Gregory, Brown, Baillie. In antiquities—Innes, Lord Hailes, Geddes, Sibbald, Pinkerton, George Chalmers. In fictitious composition—Smollett, Moore, Mackenzie, Galt, and "last, not least," but greatest, SIR WALTER SCOTT.

Such are some of the names that have occurred to us, almost at random, as belonging to Scotland; and merely to name them is all that the limits of this little section afford. But it is sufficient to excite surprise, that so brilliant a list could be produced out of so comparatively small a population—a surprise which will be increased, when it is considered what a poor, distracted, and most unfortunate country Scotland was for many hundred years, during the whole reign of the Stuarts—(her history being almost one continued series of misfortunes)—and that it is only from the middle of the last century that she can date the beginning of her prosperity.

Social State.—"There is no European nation," says Sir Walter Scott, "which, within the course of half a century, or little more, has undergone so complete a change as the kingdom of Scotland. The effects of the insurrection of 1745,—the destruction of the patriarchal power of the Highland chiefs,—the abolition of the heritable jurisdictions of the Lowland nobility and barons,—the total eradication of the Jacobite party, which, averse to intermingle with the English, or adopt their customs, long continued to pride themselves upon maintaining ancient Scottish manners and customs,—commenced this innovation. The gradual influx of wealth, and extension of commerce, have since united to render the present people of Scotland a class of beings as different from their grandfathers, as the existing English are from those of Queen Elizabeth's time." It is the common practice to attribute every beneficial change that has taken place in Scotland to its Union with England; but a mere union would have been of little avail, had Scotland not possessed in itself the germs of future prosperity in the excellency of many of its native institutions, and the enterprising character of its people. Among the institutions peculiar to the country may be mentioned its Banking establishments (see *Banks*) and its Parochial Schools. To the system of banking adopted in Scotland, particularly cash credit accounts, the country owes much of its commercial success. "Looking back," says an intelligent writer, in a popular miscellany, "on the low condition of this northern kingdom, for many years after the Union, and remembering the character of the soil and climate, it is obvious, that, but for the help thrown out by banks to agriculturists and artizans, the country—scarcely cheered by English capital—must have continued long in a withering and gloomy condition. It required at that period little else than the temporary aid of money loans to commence its career of prosperity, or to give the first impetus towards improvement. In the absence, therefore, of the precious metals, the dissemination of paper as the representative of that species of national wealth, which, from its nature, was not susceptible of being put in circulation, was one of the most creditable, and eventually the most successful, devices ever fallen upon by any people to better their circumstances. It was not without much trouble and a lapse of many years, that the system put in operation was perfected; but when the law at length interposed to secure the public, as well as the bankers, from contingent excesses, and defined the powers of lenders and borrowers, the triumph of the Scottish bank notes was complete."

While the banking establishments of Scotland have done much in cherishing and stimulating the commercial spirit of the country, parochial schools have been of still more advantage in placing within the power of the poorest inhabitant the means of instruction. Hence the peasantry and artizans of Scotland are generally distinguished above those of other countries for intelligence and moral deportment. It is rare, indeed, to find a native of the Lowlands of Scotland (at least of Scottish parents) who cannot read, write, and count. But even beyond this humble department of education, Scotland has advantages possessed by few other countries. Her Universities (four in number, St Andrews, Glasgow, Aberdeen, and Edinburgh), are not conducted on the exclusive and expensive scale of those of England, but are so constituted that persons of very moderate means may enter them. Thus a much greater proportion of the people of Scotland receive a college education than in England.

In their habits and manners, the people of Scotland are gradually approximating to those of England. The frequent intercourse that now exists between the two nations, as well as a unity of interests and pursuits, necessarily leads to this. The Scotch are still, however, as formerly, more temperate in their diet, and less temperate in the use of ardent spirits, than the English. In domestic cleanliness, also, the former have still much to learn from the latter, although Scotland has made great improvements in that respect within the last century, and it is only in the lower walks of life that any great distinction can now be drawn on the subject. In dress and household furniture, the Scottish peasant and artizan are much better provided than the English.

The people of Scotland have long been noted for their intelligence, moral worth, and industry: and the success of a Scotchman in a foreign land has almost become proverbial. Yet the Scotchman is frequently accused of cunning and subserviency in forwarding his fortunes. The *boo-ing* spirit of Sir Archy M'Sycophant is often laid to his charge. Whatever truth there may be in this, in individual cases, the accusation, in general, is clearly the result of chagrin or envy at moral or mental superiority. As a *nation*, at least, Scotland has shown nothing of the *boo-ing* spirit. In the wars of independence, England found her sufficiently inflexible. At the Reformation, she was the first to draw the sword, and did not, like her neighbour, put off and on the new religion at the bidding of her monarch. During the endeavour to establish episcopacy in the land, the people showed little disposition to *boo-ing*, when they took up their testament in the wilderness, and periled all—peace, domestic comfort, goods, life—for the sake of an abstract principle. When the Stuart family was exiled and in misfortune, the Scotch Jacobites were not the first to worship the star in the ascendant, but displayed a devotedness and fidelity to their fallen prince, which we in vain look for among the Jacobites of England. The Scottish nation, in short, has throughout her whole history displayed the reverse of that flexibility and prudence which is commonly attributed to the individuals of the country, and which is supposed to form one of their distinguishing characteristics. Perhaps it may be, that the grave demeanour and slow enunciation of the Scotch, may have led strangers to over-estimate their caution; for under a sober exterior, it is certain the Scotchman cherishes ardent and impetuous passions; and in all the social relations of life—in warmth of feeling, in profuse hospitality, and in strong attachments to kindred and friends—he assimilates more to the character of his Celtic brethren, the Irish, than his Saxon brethren, the English

Population.—In the article *Britain*, will be found Tables of the Population of the United Kingdom. We need only here subjoin the following summary of the population of Scotland from the year 1700 to 1841:

Years.	Population.	Years.	Population.	Years.	Population.
1700	1,048,000	1750	1,403.000	1790	1,567,000
1710	1,270,000	1760	1,363,000	1801	1,649.000
1720	1,390,000	1770	1,434,000	1811	1,865.000
1730	1,309.000	1780	1,458,000	1821	2,093.000
1740	1,222.000	1785	1 475,000	1841	2,620,184

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SCOTT, MICHAEL; a celebrated Scottish philosopher, and reputed magician, of the thirteenth century. He made an early progress in the languages and the mathematics, and, after residing in France some years, repaired to Germany, and applied closely to the study of medicine and chemistry. On quitting Germany, he proceeded to England, and was received with great favour by Edward II. After his return to his native country, he received the honour of knighthood from Alexander III., by whom he was also confidentially employed. He died at an advanced age, in 1291. Michael Scott was a man of considerable learning for his time, and, being much addicted to the study of the occult sciences, passed among his contemporaries for a magician, and as such is mentioned by Boccaccio and Dante. He is supposed to have been buried in Melrose abbey, and his books were either interred in his grave, or preserved in the abbey. He is author of *De Secretis Naturæ; De Natura Solis et Lunæ;* On the Transmutation of Metals; *Mensa Philosophica*, a treatise replete with the visionary sciences of chiromancy and astrology. See Mackenzie's *Lives*.

SCOTT, THOMAS, an eminent evangelical clergyman of the English church, was the son of a farmer, and born in 1747, in Lincolnshire. After having acquired some acquaintance with classical learning, he was, at the age of sixteen, apprenticed to a surgeon and apothecary at Alford, in his native county. In this situation he staid only two months; and then, returning home, he was employed in his father's business. Having a strong inclination to enter into the church, he applied himself closely to study, and obtained a considerable knowledge of both the Latin and Greek languages. In 1773, he was ordained. Becoming acquainted with Mr Newton, curate of Olney, he was converted to Calvinism, in the defence of which, both from the pulpit and the press, he greatly distinguished himself. In 1781, he removed to Olney, and, in 1785, to London, having obtained the chaplainship of the Lock chapel, near Hyde-Park corner. In 1801, he was appointed rector of Aston Sanford, in Buckinghamshire, where he died April 16, 1821. He published, in 1779, a tract, entitled the Force of Truth, 8vo., which was followed by several single sermons, and other works; but his principal productions are a Defence of Calvinism, against bishop Tomline; and a Commentary on the Bible, 6 vols. quarto.

SCOTT, SIR WALTER, bart., a distinguished poet, but still more distinguished as a novelist, being indeed, in fertility of invention, range of character, and truth of description, the greatest that any age or country has produced, was born in Edinburgh, August 15, 1771. He was a younger son of Mr Walter Scott, writer to the signet, by Anne, daughter of Dr John Rutherford, professor of the practice of medicine in the university of Edinburgh. Sir Walter's father was grandson to a younger son of Scott of Raeburn, a branch of the ancient baronial house of Harden; and his mother was granddaughter to Sir John Swinton, of Swinton, in Berwickshire. Being an ailing child, he was sent at a very early period of life to Sandyknow, a farm near the bottom of Leader water, in Roxburghshire. occupied by his paternal grandfather, where he had ample opportunities of storing his mind with border tradition. The first school he attended is said to have been one in Kelso, taught by a Mr Whale, where he had for school-fellows James and

John Ballantyne, who subsequently became intimately connected with him in public life. He entered the high school of Edinburgh in 1779, when the class with which he was ranked (that of Mr Luke Fraser) was commencing its third season. Under this master he continued during two years, after which he entered the rector's class, then taught by Mr Alexander Adam. In October, 1783, having completed the usual classical course, he was matriculated at the university of Edinburgh, studying Latin, under professor Hill, and Greek, under professor Dalzell. Another year under Dalzell, and a third in the logic class, taught by professor Bruce, appear to have formed the sum of his unprofessional studies at college. He was much devoted at this period to reading; and an illness, which interrupted his studies in his sixteenth year, afforded him an unusually ample opportunity of gratifying this taste. He read, by his own confession, all the old romances, old plays, and epic poems, contained in the extensive circulating library of Mr Sibbald, (founded by Allan Ramsay;) and soon after extended his studies to histories, memoirs, voyages, and travels. On the restoration of his health, he commenced, in his father's office, an apprenticeship to legal business, which was completed in July, 1792, by his entering at the Scottish bar.

The leisure hours of his early life, as an advocate, were devoted to the study of German; and the result was, a translation of "Burger's Lenore," and "Der Wilde Jager," which he published in a small quarto volume in 1796. The success of this attempt was by no means encouraging; yet he persevered in his German studies, and, in 1799, gave to the world a translation of Göthe's "Goetz of Berlichengen." Previously to the latter event, namely, on the 24th December, 1797, he had married Miss Carpenter, a young Frenchwoman of good parentage, whom he accidentally met at Gilsland wells, in Cumberland, and who possessed a small annuity. It is also worthy of notice, that, in 1799, he was appointed sheriff of Selkirkshire, a situation to which an income of three hundred pounds was attached.

Soon after he commenced the collection of those ancient ballads, which, in 1802, were published in two volumes octavo, as the Minstrelsy of the Scottish Border. On the reprinting of this work, in the ensuing year, he added a third volume, consisting chiefly of original ballads, by himself and others. The work was, upon the whole, a pleasing melange of history, poetry, and tradition; and it gained the author a considerable reputation, though certainly not that of an original poet in any eminent degree. In the annotations to the ancient romance of Sir Tristrem, which he published in 1804, he gave still more striking proof of the extent of his acquirements in metrical antiquities.

It was not till the year 1805, when Scott had reached the age of thirty-four, and had a family rising around him, that he attracted decided attention as an original poet. He published in that year his "Lay of the Last Minstrel," an extended specimen of the ballad style, and one which fell upon the public mind as something entirely new in poetry.

In 1806, he received the appointment of a principal clerk of session, through the interest of the Buccleuch and Melville families, which he had conciliated, partly by his talents, and partly by the zeal with which he entered into the volunteer system at the close of the past century. He succeeded Mr George Home, upon an arrangement, by which that gentleman was to enjoy the salary for life; so that it was not till 1811 that the poet reaped any actual benefit from it. The appointment was given by Mr Pitt, but was formally completed under the ensuing administration of Lord Grenville.

In 1808, Scott published his second poem of magnitude, "Marmion," which displayed his metrical genius in greater perfection than the Lay of the Last Minstrel, and greatly increased his reputation. While the latter work had produced him £600, the present secured one thousand guineas. Previously to 1825, no fewer than thirty-six thousand copies of Marmion were sold. In the same year, he published an edition of Dryden's works, with notes, and a life of that poet. In 1809, he edited the State papers and letters of Sir Ralph Sadler; and soon after he became a contributor to the Edinburgh Annual Register, started by Mr Southey.

"The Lady of the Lake," in which his poetical genius seems to have reached the acme of its powers, was published in 1810. His earlier efforts were less matured and refined; and the later are all, in various degrees, less spirited and effective. In 1811 appeared "Don Roderick," a dreamy vaticination of modern Spanish history. In 1813 he published "Rokeby," in which he attempted, but without success, to invest English scenery, and a tale of the civil war, with the charm which he had already thrown over the Scottish Highlands and Borders, and their romantic inhabitants. Rokeby was followed, in 1814, by "The Lord of the Isles;" but partly owing to the public having become satiated with his peculiar style, which had lost the charm of novelty, and partly owing to the appearance of Lord Byron, who had now commenced his brilliant career, Scott's poetry began to fall in popularity. As if to try how far his name now operated in promoting the sale of his writings, he produced, anonymously, two small poems in succession, "Harold the Dauntless," and "The Bridal of Triermain." Neither made any considerable impression upon the public; and he, therefore, seems to have concluded that poetry was no longer a line in which he ought to exercise his talents.

The appearance of the prose romance of Waverley, in 1814, forms an epoch in modern literature as well as in the life of Scott. The circumstances which led him to attempt this new style of composition, and induced him for so long a period carefully to conceal his authorship, are detailed in a very interesting manner in his introduction to the new edition of this extraordinary series of tales. We cannot do more than merely refer to his own narrative. But we may remark in passing, that, however well the secret was kept, and however vehement and ludicrous the controversies to which it gave rise, it was in reality no secret at all to any one (to any Scotchman, at least, of literary sagacity,) who was acquainted with Sir Walter's other works, or with his trains of thought and modes of expression. Among the literary men of Edinburgh, assuredly there was scarcely even the shadow of a doubt from the beginning.

While the Court of Session was sitting, Scott lived in Edinburgh, in a good substantial house in North Castle Street. During the vacations he resided in the country, and entered with ardour into the ordinary occupations and amusements of country gentlemen. After he was appointed Sheriff of Selkirk, he hired for his summer residence the house and farm of Ashiesteil, in a romantic situation on the banks of the Tweed; and here many of his poetical works were written. But with the increase of his resources grew the desire to possess landed property of his own, where he might indulge his taste for building, planting, and gardening. Commencing with moderation, he purchased a small farm of about 100 acres, lying on the south bank of the Tweed, three miles above Melrose, and in the very centre of that romantic and legendary country which his first great poem has made familiar to every reader. This spot, then called Cartly Hole, had a northern exposure, and at that time a somewhat bleak and uninviting aspect; the only habitable house upon it was a small and inconvenient farm-house. Such was the nucleus of the mansion and estate of Abbotsford. By degrees, as his resourses increased, he added farm after farm to his domain, and reared his chateau, turret after turret, till he had completed what a French tourist not unaptly terms "a romance in stone and lime;" clothing meanwhile the hills behind, and embowering the lawns before, with flourishing woods of his own planting.

The desire of becoming an extensive landed proprietor was a passion which glowed more warmly in his bosom than any appetite which he ever entertained for literary fame. Thus it was a matter of astonishment to many, that, while totally insensible to flattery on the score of his works, and perfectly destitute of all the airs of a professed or practised author, he could not so well conceal his pride in the possession of a small patch of territory. It was now the principal spring of his actions to add as much as possible to the little realm of Abbotsford, in order that he might take his place—not among the great literary names which posterity is to revere, but among the country gentlemen of Roxburghshire. Under the influence of this passion, Scott produced a rapid succession of novels, of which it will be sufficient here to state the names and dates. To Waverley succeeded, in 1815, Guy Mannering; in 1816, the Antiquary, and the First Series of the Tales of my Landlord, containing the Black Dwarf and Old Mortality; in 1818, Rob Roy, and the Second Series of the Tales of my Landlord, containing the Heart of Mid-Lothian; and in 1819, the third Series of the Tales of my Landlord, containing the Bride of Lammermoor and a Legend of Montrose. It is to be observed that the series, called "Tales of my Landlord," were professedly by a different author from him of Waverley, an expedient which the real author had thought conducive to the maintenance of the public interest. Having now drawn upon public curiosity to the extent of twelve volumes in each of his two incognitos, he seems to have thought it necessary to adopt a third, and accordingly he intended Ivanhoe, which appeared in the beginning of 1820, to come forth as the first work of a new candidate for public favour. From this design he was diverted by a circumstance of trivial importance, the publication of a novel at London, pretending to be a fourth series of the Tales of my Landlord. It was therefore judged necessary that Ivanhoe should appear as a veritable production of the author of Waverley. To it succeeded, in the course of the same year, the Monastery and the Abbott. In the beginning of the year 1821, appeared Kenilworth: making twelve volumes, if not written, at least published in as many months. In 1822 he produced the Pirate and the Fortunes of Nigel; in 1823, Peveril of the Peak (four volumes) and Quentin Durward; in 1824, St Ronan's Well and Redgauntlet; in 1825, Tales of the Crusaders (four volumes); in 1826, Woodstock; in 1827, Chronicles of the Canongate, *first series* (two volumes); in 1828, Chronicles of the Canongate, *second series;* in 1829, Anne of Geierstein; and in 1831, a fourth series of Tales of my Landlord, in four volumes, containing two tales, respectively entitled Count Robert of Paris, and Castle Dangerous. The whole of these novels, except where otherwise specified, consisted of three volumes, and, with those formerly enumerated, make up the amount of his fictitious prose compositions to the enormous sum of seventy four volumes.

Throughout the whole of his career, both as a poet and novelist, Sir Walter was in the habit of turning aside occasionally to less important avocations of a literary character. He was a contributor to the Edinburgh Review during the first few years of its existence. To the Quarterly Review, he was a considerable contributor, especially for the last five or six years of his life, during which the work was conducted by his son-in-law, Mr Lockhart. To the Supplement of the sixth edition of the Encyclopædia Britannica, he contributed the articles Chivalry, Romance, and the Drama. In 1818, he wrote one or two small prose articles for a periodical, after the manner of the Spectator, which was started by his friend Mr John Ballantyne, under the title of "The Saleroom," and was soon after dropped for want of encouragement. In 1814, he edited the Works of Swift, in nineteen volumes, with a life of the author. In the same year, he gave an elaborate introductory essay to a work, entitled "Border Antiquities," (two volumes, quarto,) which consisted of engravings of the principal antique objects on both sides of the Border, accompanied by descriptive letter-press. In 1815, he made a tour of France and Belgium, visiting the field of Waterloo. The result was a lively traveller's volume, under the title of "Paul's Letters to his Kinsfolk," and a poem, styled "The Field of Waterloo." In the same year he joined with Mr Robert Jamieson and Mr Henry Weber, in composing a quarto on Icelandic Antiquities. In 1819, he published "An Account of the Regalia of Scotland," and undertook to furnish the letter-press to a second collection of engravings, under the title of "Provincial Antiquities and Picturesque Scenery of Scotland," one of the most elegant books which has ever been published respecting the native country of the editor. In 1822, he published "Trivial Poems and Triolets, by P. Carey, with a Preface;" and in 1822, appeared his dramatic poem of "Halidon Hill." In the succeeding year he contributed a smaller dramatic poem, under the title of "Macduff's Cross," to a collection of Miss Joanna Baillie. The sum of his remaining poetical works may here be made up, by adding "The Doom of Devorgoil," and "The Auchindrane Tragedy," which appeared in one volume in 1830.

The great success of the earlier novels of Sir Walter Scott had encouraged his publishers, Messrs Archibald Constable and Company, to give large sums for those works; and, previous to 1824, it was understood that the author had spent from fifty to a hundred thousand pounds, thus acquired, upon his house and estate of Abbotsford. During the months which his official duties permitted him to spend in the country—that is, the whole of the more genial part of the year, from March till November, excepting the months of May and June—he kept state, like a wealthy country gentleman, at this delightful seat, where he was visited by many distinguished persons from England, and from the continent. As he scarcely ever spent any other hours than those between seven and eleven, A.M., in composition, he was able to devote the greater part of the morning to country exercise, and the superintendence of his planting and agricultural operations; while the evenings were, in a great measure, devoted to his guests. Almost every day, he used to ride a considerable distance—sometimes not less than twenty miles—on horseback. He also walked a great deal; and, lame as he was, would sometimes tire the stoutest of his companions.

Among the eminent persons to whom he had been recommended by his genius, and its productions, king George the IVth was one, and not the least warm in his admiration. The poet of Marmion had been honoured with many interviews by his sovereign, when prince of Wales and prince regent; and his majesty was pleased, in March, 1820, to create him a baronet of the United Kingdom, being the first to whom he had extended that honour after his accession to the crown. In 1822, when his majesty visited Scotland, Sir Walter found the duty imposed upon him, as in some measure the most prominent man in the country, of acting as a kind of master of ceremonies, as well as a sort of dragoman, or mediator, between the sovereign and the people. It was an occasion for the revival of all kinds of historical and family reminiscences; and Sir Walter's acquaintance with national antiquities, not less than his universally honoured character, caused him to be resorted to by innumerable individuals, and many respectable public bodies, for information and advice.

The author of Waverley was still continuing to issue the apparently inexhaustible "coinage of his brain," at the rate of from three to eight volumes a year, exclusive of as much additional poetry and prose "by Sir Walter Scott" as would have built up a goodly reputation for any ordinary author,—when, in January 1826, the house of Constable and Company became bankrupt. It then became known, to the extreme surprise and universal regret of the public, that their great literary benefactor and favourite was involved by the failure to an extent which appeared utterly ruinous. By bill transactions with Messrs Constable and Company, and by other means, he had become responsible for debts to the enormous amount of £120,000, of which not above one half were actually incurred on his own account. How a man of Sir Walter's characteristic prudence and knowledge of business should have been so incautious as to entangle himself in such transactions, is scarcely well accounted for. Probably the very large sums expended in the purchase and embellishment of Abbotsford, amounting, it is said, to from fifty to a hundred thousand pounds, was one chief originating cause of these involvements. But whatever may have been the causes of this crushing misfortune, his conduct under it was admirable; and the honour which rests upon his memory for his gigantic exertions to pay off this immense debt without deduction, is a far nobler heritage to his posterity than the most princely fortune. He encountered adversity with dignified and manly intrepidity. On meeting the creditors he refused to accept of any compromise, and declared his determination, if life was spared him, to pay off every shilling. He insured his life in their favour for £22,000; surrendered all his available property in trust; sold his town house and furniture, and removed to an humbler dwelling; and then set himself calmly down to the stupendous task of reducing this load of debt. The only indulgence he asked for was time; and time was liberally and kindly given him. A month or two after the crash of Constable's house Lady Scott died—domestic affliction thus following fast on worldly calamity. The divulgement of the Waverley secret became, by the exposure of Constable's concerns, indispensable, and took place at an anniversary dinner of the Edinburgh Theatrical Fund Association in February, 1827. The original manuscripts of these works falling into the possession of the creditors, were afterwards sold in London by public auction.

Sir Walter was engaged, at the time of his bankruptcy, in the composition of a Life of Napoleon Bonaparte, which was originally designed to fill only four volumes, but eventually extended to nine. In the autumn of 1826, he paid a visit to Paris, in company with his youngest and only unmarried daughter, in order to acquaint himself with several historical and local details, requisite for the work upon which he was engaged. On this occasion, he was received with distinguished kindness by the reigning monarch, Charles X. The "Life of Napoleon" appeared in summer, 1827; and, though too bulky to be very popular, and perhaps too hastily written to bear the test of rigid criticism, it was understood to produce to its author a sum little short of £12,000. This, with other earnings and accessory resources, enabled him to pay a dividend of six shillings and eightpence to his creditors.

About the same time, the copyright of all his past novels was brought to the hammer, as part of the bankrupt stock of Messrs Constable and Company. It was bought by Mr Robert Cadell, at £8,400, for the purpose of republishing the whole of these delightful works in a cheap and uniform series of volumes, illustrated by notes and prefaces, and amended in many parts by the finishing touches of the author. Sir Walter, or his creditors, were to have half the profits, in consideration of his literary aid. This was a most fortunate design. The new edition began to appear in June, 1829; and such was its adaptation to the public convenience, and the eagerness of all ranks of people to contribute in a way convenient to themselves towards the reconstruction of the author's fortunes, that the sale soon reached an average of twenty-three thousand copies. The author was now chiefly employed in preparing these narratives for the new impression; but he nevertheless found time occasionally to produce original works. In November, 1828, he published the first part of a juvenile History of Scotland, under the title of "Tales of a Grandfather," being addressed to his grandchild, John Hugh Lockhart, whom he typified under the appellation of Hugh Littlejohn, Esq. In 1829, appeared the second, and in 1830, the third and concluding series of this charming book. In 1830, he also contributed a graver History of Scotland, in two volumes, to the periodical work called "Lardner's Cabinet Cyclopædia." In the same year, appeared his Letters on Demonology and Witchcraft, as a volume of Mr Murray's "Family Library;" and, in 1831, he added to his Tales of a Grandfather, a uniform series on French history. In the same year, two sermons which he had written a considerable time before, for a young clerical friend, were published by that individual in London, and, as specimens of so great an author in an extraordinary line of composition, met with an extensive sale. The profits of these various publications, but especially his share of the profits of the new edition of his novels, enabled him, towards the end of the year 1830, to pay a dividend of three shillings in the pound, which, but for the vast accumulation of interest, would have reduced his debts to nearly one-half. Of £54,000 which had now been paid, all except six or seven thousand had been produced by his own literary labours; a fact which fixes the revenue of his intellect for the last four or five years at nearly £10,000 a year. Besides this sum, Sir Walter had also paid up the premium of the policy upon his life, which, as already mentioned, secured a *post obit* interest of £22,000 to his creditors. On this occasion, it was suggested by one of these gentlemen, (Sir James Gibson Craig), and immediately assented to, that they should present to Sir Walter personally the library, manuscripts, curiosities, and plate, which had once been his own, as an acknowledgment of the sense they entertained of his honourable conduct.

In November, 1830, he retired from his office of principal clerk of session, with the superannuation allowance usually given after twenty-three years' service. Earl Grey offered to make up the allowance to the full salary: but, from motives of delicacy, Sir Walter firmly declined to accept of such a favour from one to whom he was opposed in politics.

His health, from his sixteenth year, had been very good, except during the years 1818 and 1819, when he suffered under an illness of such severity as to turn his hair quite grey, and send him out again to the world apparently ten years older than before. It may be mentioned, however, that this illness, though accompanied by very severe pain, did not materially interrupt or retard his intellectual labours. He was only reduced to the necessity of employing an amanuensis, to whom he dictated from his bed. The greater portion of the Bride of Lammermuir and of Ivanhoe were created under these circumstances. Mr William Laidlaw, his factor, who at one time performed the task of amanuensis, has described how he would sometimes be stopped in the midst of some of the most amusing or most elevated scenes, by an attack of pain—which being past, he would recommence in the same tone at the point where he had left off, and so on for day after day, till the novel was finished. It happened very unfortunately, that the severe task which he imposed upon himself, for the purpose of discharging his obligations, came at a period of life when he was least able to accomplish it. It will hardly be believed that, even when so far occupied with his official duties in town, he seldom permitted a day to pass over his head without writing as much as to fill a sheet of print, or sixteen pages; and this, whether it was of an historical nature, with of course the duty of consulting documents, or of fictitious matter spun from the loom of his fancy. The reader may judge how strong must have been that principle of integrity, which could command such a degree of exertion and self-denial, not so much to pay debts contracted by himself, as to discharge obligations in which he was involved by others. He can only be likened, indeed, to the generous elephant, which, being set to a task above its powers, performed it at the expense of life, and then fell dead at the feet of its master.

His retirement from official duty might have been expected to relieve in some measure the pains of intense mental application. It was now too late, however, to redeem the health that had fled. During the succeeding winter, symptoms of gradual paralysis, a disease hereditary in his family, began to be manifested. His contracted limb became gradually weaker and more painful, and his tongue less readily obeyed the impulse of the will. Since the early part of the year 1831, he had, in a great measure, abandoned the pen for the purposes of authorship. This, however, he did with some difficulty, and it is to be feared that he resumed it more frequently than he ought to have done. In the autumn, his physicians recommended a residence in Italy, as a means of delaying the approaches of his illness. To this scheme he felt the strongest repugnance, as he feared he should die on a foreign soil, far from the mountain-land which was so endeared to himself, and which he had done so much to endear to others; but by the intervention of some friends, whose advice he had been accustomed to respect from his earliest years, he was prevailed upon to comply. By the kind offices of captain Basil Hall, liberty was obtained for him to sail in his majesty's ship the Barham, which was then fitting out for Malta. He sailed in this vessel from Portsmouth, on the 27th of October, and on the 27th of December landed at Naples, where he was received by the king and his court with a feeling approaching to homage. In April, he proceeded to Rome, and was there received in the same manner. He paid visits to Tivoli, Albani, and Frescati. Feeling, however, that his strength was rapidly decaying, his desire to return to his native land became irrepressible, and he hurried homeward with a rapidity which, in his state of health, was highly injurious, and doubtless accelerated the catastrophe which perhaps no degree of skill or caution could have long delayed. He experienced a further severe attack of his disorder in passing down the Rhine, and reached London in nearly the last stage of physical and mental prostration. Medical aid could only, it was found, for a short period postpone dissolution; and to gratify his most ardent dying wish, he was conveyed by the steam packet to Leith, and on the 11th of July, 1832, reached once more his favourite house at Abbotsford,—but in such a pitiable condition, that he no longer recognised his nearest and dearest relations. After lingering in this state till, in the progress of his melancholy malady, mortification had been some time proceeding in different parts of the mortal frame, he expired without a struggle on the 21st of September, 1832. He was interred in his family burial aisle amidst the ruins of Dryburgh abbey,—a spot of great picturesque beauty, lying on the Tweed Side, about half way between Smailholm, the scene of his simple infancy, and Abbotsford, the stately home of his latter years.

Sir Walter left a family of two sons and two daughters. The elder son, the present Sir Walter, is a major in the 15th Hussars; the younger, Charles, is an attaché to the Neapolitan Legation. The elder daughter was married in 1820, to Mr J. G. Lockhart, and died in 1837; the younger daughter, Anne, did not long survive the death of her father. In stature, Sir Walter was above six feet; but, having been lame from an early period of life in the right limb, he sank a little on that side in walking. His person was, in latter life, bulky, but not corpulent, and made a graceful appearance on horseback. His features must be familiar to every reader though the medium of the innumerable portraits, busts, and medallions, by which they have been commemorated. In private life, Sir Walter was distinguished for uprightness and purity of character, for great simplicity and kindliness of manners, and benevolence of heart.

In the Memoirs of Sir Walter Scott, by Mr Lockhart—a work characterised by manly frankness of detail, and felicity of expression—we are told, that when Sir Walter, in the presence of George IV., denied being the author of Waverley, the king, in a well-turned compliment, said he was glad to hear it, for it was a higher boast to have *two* such brilliant writers as the authors of Marmion and Waverley, than *one*. But although the writings of Scott are sufficient, in extent and variety, to have established a dozen literary reputations, the poet and novelist are, in almost all their distinguishing features, the same. In abandoning poetry for prose, Scott left behind him only the trammels of verse; he brought to the new arena the same charms with which he had fascinated the world in the old, and he gathered fresh vigour from the greater freedom with which he could now wield them, and the wider field which he had chosen for their display. The amazing powers of invention and description, whether of character or situation—the comprehensive knowledge of manners in bye-gone times—the relish of nature in all her moods—and the healthy elasticity of spirit, which were so largely shown in his poetical works—were displayed even more abundantly in his prose productions; and in addition he was now no longer precluded, by the restrictions of poetical composition, from depicting scenes of every day life and homely feeling, in which he proved so great a master, nor from indulging in that exquisite yet ever charitable sense of the ludicrous, which was so singularly blended, in the composition of his character, with a high sympathy for whatever, in feeling or action, was dignified, generous, or romantic. Of all his works, his early novels, drawn from the resources of a heart fraught with humanity, and a memory stored with observation, are undoubtedly those upon which his fame will eventually rest. His poems, with all their attractions, and even the more ambitious of his prose romances, Ivanhoe, Kenilworth, and the like, being necessarily somewhat built on artificial principles, may, in the changes of literature, cease to be imitated or read; but The Antiquary, The Heart of Mid-Lothian, Guy Mannering, Waverley, and Old Mortality, are, we conceive, imperishable, and can only cease to be relished when mankind cease to venerate nature and truth.

SCOTUS, DUNS. See *Duns.*

SCOTUS, JOHN. See *Erigena.*

SCOUGAL, HENRY, an eminent Scotch divine, born in 1650, was educated in the university of St Andrews, where he became professor of Oriental philology at the age of twenty. In 1673, he was presented by his college to a living, but recalled the following year, and made professor of theology. His great exertions, both in this capacity and as a preacher, threw him into a consumption, and he died, greatly lamented, in 1678, at the early age of twenty-eight. He was the author of an eloquent and able work, entitled, The Life of God in the Soul of Man, which has run through many editions; and also of Nine Sermons, by which he acquired the reputation of being one of the most elegant writers and able divines of his country and age.

SCREW, in mechanics. See *Mechanics.*

SCREW PINE. The species of *pandanus* are all natives of the tropical parts of the eastern continent, and are among the most ornamental productions of the vegetable world. The *P. odoratissimus* is a large, spreading, branching shrub, with very long leaves, which are spiny on the back and margin, somewhat resembling in form those of the pine-apple, and which are disposed in three spiral rows round the extremities of the branches. It grows in all soils and situations in the tropical parts of Asia, and is much employed there for hedges. The tender white leaves of the flowers, chiefly those of the male, yield that most delightful fragrance, by far the richest and most powerful of the perfumes, for which they are so generally esteemed, and for which the plant is cultivated in Japan. The lower pulpy part of the drupe is sometimes eaten by the natives in times of scarcity, but the taste is very disagreeable; the tender white base of the leaves is also employed for food at such times. The leaves are composed of longitudinal tough fibres; and in the South Sea islands these or the leaves of some other species are used for making mats. In the Sandwich islands, the mats are handsomely worked in a variety of patterns, and stained of different colours. The plant is called *wharra* tree, at Otaheite.

SCRIBES, among the Jews, were officers of the law. There were *civil* and *ecclesiastical* scribes. The former were employed about any kind of civil writings or records. The latter studied, transcribed and explained the Holy Scriptures.

SCROFULA, *scrophula;* (from *scrofa*, a swine; because this animal is said to be much subject to a similar disorder); a disease of children, consisting in hard tumors of the glands in various parts of the body, but particularly in the neck, behind the ears, and under the chin, which, after a time, suppurate, and degenerate into ulcers, from which, instead of pus, a white curdled matter is discharged. The first appearance of the disease is most usually between the third and seventh year of the child's age; but it may arise at any period between this and the age of puberty; after which it seldom makes its first attack. It most commonly affects children of a lax habit, with smooth, fine skins, fair hair and rosy cheeks. It likewise is apt to attack such children as show a disposition to rickets. Like this disease, it seems to be peculiar to cold and variable climates, being rarely met with in warm ones. Scrofula is by no means a contagious disease, but is of a hereditary nature, and is often entailed by parents on their children. The attacks of the disease seem much affected or influenced by the periods of the seasons. They begin usually some time in the winter and spring, and often disappear, or are greatly amended, in summer and autumn. The first appearance of the disorder is commonly in that of small oval or spherical tumors under the skin, unattended by any pain or discolouration. These appear, in general, upon the sides of the neck, below the ear or under the chin, but, in some cases, the joints of the elbows or ankles, or those of the fingers and toes, are the parts first affected. In these instances we do not, however, find small, moveable swellings, but, on the contrary, a tumor almost uniformly surrounding the joint, and interrupting its motion. After some time, the tumors become larger and more fixed, the skin which covers them acquires a purple or livid colour, and being much inflamed, they at last suppurate, and break into little holes, from which, at first, a matter somewhat puriform oozes out; but this changes, by degrees, into a kind of viscid, serous discharge, much intermixed with small pieces of a white substance. The tumors subside gradually, whilst the ulcers at the same time open more, and spread unequally in various directions. After a time, some of the ulcers heal; but other tumors quickly form in different parts of the body, and proceed on, in the same slow manner as the former ones, to suppuration. In this manner the disease goes on for some years; and, appearing at last to have exhausted itself, all the ulcers heal up, without being succeeded by any fresh swellings, but leaving behind them an ugly puckering of the skin, and a scar of considerable extent. This is the most mild form under which scrofula appears. In more virulent cases, the eyes are particularly the seat of the disease, and are affected with ophthalmia, giving rise to ulcerations in the *tarsi*, and inflammation of the *tunica adnata*, terminating not unfrequently in an opacity of the transparent cornea. The joints become affected; they swell, and suffer excruciating deep-seated pain, which is increased upon the slightest motion. The swelling and pain continue to increase; the muscles of the limb become at length much wasted. Matter is soon afterwards formed, and this is discharged at small openings made by the bursting of the skin. Being, however, of a peculiarly acrimonious nature, it erodes the ligaments and cartilages, and produces a caries of the neighbouring bones. By an absorption of the matter into the system, hectic fever at last arises, and, in the end, often proves fatal. The treatment consists chiefly in the use of means adapted to promote the general health, a nutritious diet, easy of digestion, a pure, dry air, gentle exercise, friction, cold bathing, especially in the sea, and strengthening medicines, as the preparations of iron, myrrh, &c. Various mineral waters, and other remedies which moderately promote the secretions, appear also to have been often useful. In irritable states of the system, hemlock has been employed with much advantage. The applications to the tumors and ulcers must vary according to the state of the parts, whether indolent or irritable; where the tumors show no disposition to enlarge, or become inflamed, it is better to interfere little with them; but their inflammation must be checked by leeches, &c., and when ulcers exist, stimulant lotions or dressings must be used, to give them a disposition to heal: but if they are in an irritable state, a cataplasm, made with hemlock, or other narcotic.

SCUDERI, George de, a French writer, born at Havre, in 1601, was descended from an ancient Provençal family. He was a member of the academy (1650), and died in 1667. His dramatic works (sixteen plays), sonnets, heroic poems, romances, &c., have been long forgotten. His sister, *Madeleine*, was born at Havre, in 1607, and went at an early age to Paris, where, though remarkably ugly, she attracted notice by her talents and wit. Her numerous and long-winded romances depict the manners of the French court in the extraordinary taste of the time. She died in 1701. Mademoiselle Scudéri was entitled the Sappho of her time. The most distinguished scholars and wits of Europe were her friends; the academy at Padua chose her a member of their body; the French academy awarded the prize to her Dissertation on Glory. Her principal works were *Artamène, ou Le Grand Cyrus* (10 vols. 8vo); *Clélie* (10 vols.); with 10 volumes of Conversations on different subjects, which are her best productions.

SCULPTURE, or the art of representing visible forms in hard masses, by means of the chisel, had its origin in the art of modelling figures in soft substances (see *Plastic Art*), as the ancient idols of all nations were formed. The more difficult art of carving figures in wood and ivory, and still more of cutting them in stone and casting them in metal, were the inventions of a later period. These inventions were also the offspring of religion; at first only objects of religious worship were represented. In the earliest times, men venerated blocks and rough stones, or Bætylia, which were said to have fallen from heaven, and which are now called *aërolites*, or *meteoric stones.* Blocks of stone were also worshipped as landmarks, and were called *termini.* From the ninth to the seventh century B. C., the Greeks had much intercourse with the Phœnicians. This commercial nation worshipped the god Theut, Thoth, who had taught them the use of letters. They afterward employed his image as their landmarks, calling it their god, and compelled the rude Autochthones to worship it. Such pillars were called *hermæ:* the god of roads and travellers was therefore called, by the Greeks, *Hermes.* They afterwards put a head upon these pillars, which is the origin of busts. The productions of sculpture are divided into insulated pieces, or such as may be viewed from all sides, whether full figures, or *Hermæ*, busts, heads, masks, vases, pedestals, &c., and works in relief. (See *Bass-relief*, and *Relievo.*) The elder sister of sculpture, in insulated forms, is architecture. The first object of sculpture was the ornamenting of temples.

History of Sculpture. We find very early indications of sculpture in the Bible. Laban, who lived in the twenty-third century B. C., had images of his domestic gods, which were called, in Hebrew, *teraphim.* In the very ancient Indian cavern and grotto temples, are found works of sculpture; for instance, in the pagoda of Elephantis, near Bombay, is a colossal statue of Brama. This deity is represented sitting, his arms crossed, with the face and figure of a man in front, and with a female face and form behind; upon his right breast is the sun; upon his left breast the moon and the stars; waters, mountains, animals, and plants are exhibited upon this statue, which the Hindoos believed God to have presented to his Son, as a model, at the creation of the world. The fancy of the Hindoos was very rich, but inclined towards the symbolic and allegoric, so that they never attained to a pure style of art. Their sculpture is highly expressive, but without a feeling of beauty, and exhibits a mosaic of ideas. (See Plate LXXIX, figs. 14 and 15.) The Persians had many works of sculpture, as the ruins of Persepolis prove; but, as they never formed naked figures, they failed to gain a just idea of the human form. (See Plate LXXIX, fig. 16.) In Assyria, the art flourished under queen Semiramis. We find mention of brazen statues of Semiramis, Belus, and Ninus. In Curdistan, very ancient works of sculpture are found, which the inhabitants consider as the images of Chosroes and his beloved Shereen, and call the poet and artist Ferhad, the sculptor. The Egyptians were the first who adopted a certain style of art. The works of art produced by this nation were gloomy and grave, but full of deep sentiment, connected, by the hieroglyphics which covered them, with poetry and history, and by the mummies, with the belief of immortality. But as the kingdom of the dead seemed to them the true existence, so their art is more related to death than to life: their figures are stiff and motionless, like the mummies; even their images of Isis have this character. (See Plate LXXIX.) These are connected with the ancient image of Diana at Ephesus, and with the most ancient Grecian art; as the use of the human form on the capitals of the columns at Dendera, the singularly extended female figures around the zodiac of that place, and the mixture of human and animal forms in the Sphinx, the Anubis, &c., are evidently related to the Indian art. If we consider the old Grecian style, we find first the above-mentioned *Hermæ*, the double-headed figures which we call images of Janus, and which originally denoted the sun and the moon, numberless variations of the *Hermæ*, as the *Hermeraclæ*, *Hermathenæ*, *Hermerotæ*, &c. From these, which had neither hands nor feet, the next step was to images, formed like mummies, made of ebony or cedar wood, in which the arms were close to the body, and the feet were only indicated by an incision, the eyes and the mouth only by a slit. The artist next separated the arms from the trunk, parted the feet, and put weapons, as a shield and spear, into the hands of the idols: thus the first images of Pallas originated. Other armed idols, which belong to the Cretan family, were also called *Palladia*, as, for instance, the Taurian Diana. As they were made small, they were commonly placed upon columns. The word *statue* is derived from the Latin *statuo*, to set up, or from *sto*, to stand. In the larger statues in metal, the body of the image was merely a cylindrical pillar, as in the colossus of the Amyclean Apollo. With Dædalus (q. v.) begins a new epoch in the art, about three generations before the Trojan war. Of him, the Greeks said symbolically, that his divine genius made statues walk, see, and speak. They considered him the master, or rather the inventor, of the art; he was also the symbol of the first miner: hence the fable of the Dædalian labyrinth at Crete, or the horizontal passages in the first mine of that island, which abounded in metal. His disciples were called his sons: hence all artists were symbolically called *Dædalides*. (See Plate LXXIX, fig. 19.) The old Grecian art then became divided into three different national styles—the old Attic, the Æginetic, and the Etrurian. The arts flourished in the temples, not only by means of statues, but still more by *anathemata*, consecrated presents, thrones decorated with figures, coffers, shields, tripods, and vases. The most celebrated are, 1. the coffer of Cypselus in Olympia, made of cedar wood, and inlaid with gold and ivory, and, 2. the throne of Apollo at Amyclæ, a colossal seat of a still more ancient colossus of Apollo, made by the Magnesian Bathycles, probably in the time of Solon. It contained, in twenty-eight panels outside, and fourteen panels inside, the then existing mythology of the gods and heroes. In these two pieces, a peculiar expression, united with the greatest poverty and rudeness of design and proportion, is observable; inscriptions are every where necessary for explanation, and the works are not pleasing; their character is allegory, bordering on hieroglyphics. Two temples of this epoch are memorable, as the works of the first Dædalides, Dipœnus, Rhœcus, and Scyllis:—1. the Heræum, or very ancient temple of Here (Juno) of Samos. The most ancient statue of Juno there was made by Smilis of Ægina: it was veiled and provided with supports. 2. The Artemisium at Ephesus: the most ancient statue in it was said to have fallen from heaven, and was dedicated by the Amazons. Afterwards, the black statue of Diana, in the form of a mummy with many breasts, as the goddess of nature, was carried to this temple. At that time, the statues were made of beaten brass plate; afterwards, artists began at Samos to cast them, but only in pieces, which were joined together by swallow-tailed fastenings. Several works of this primitive epoch are still preserved. Every thing in them is exaggerated; the motions are angular, the folds overcharged, the drapery stiff, the contours without regularity or precision. This early style displayed strength and energy, without expression and beauty. Under the Pisistratidæ, the art continued to flourish. But it was not until the splendid administration of Pericles, that the highest conceptions of art were formed. In this short period of twenty years, Athens produced more splendid works than Rome, the mistress of the world, produced in seven centuries. The influence of the great poets of this time, upon the art, was certainly important. It was the age of classic models and the ideal style. Phidias made two chief ideals, Minerva and Jupiter; the former for the Parthenon in Athens; the latter, the famous Olympian Jupiter at Elis. Both were wrought in ivory and gold; the god was beautifully formed, although forty feet high. His throne was splendidly adorned. The expression of Jupiter was a union of power, wisdom, and benevolence; he sat at Elis as the chief judge of the contests in the Olympic games. His size is described in the words of an epigrammatist, who said, "The statue of Jupiter would have thrust off the roof of the temple like a thin shell, if it had ever risen from its golden throne." Phidias began the class of ideal forms, which, for the male figures, was afterwards divided into gods, demi-gods, and heroes; for female figures, various forms were adopted as ideals:—1. The Virgin: this is again divided into two chief branches: *a*. the Doric Cretan, short-waisted, twice-girded figure, used to represent Diana, the Amazons, Nymphs, and Bacchantes; *b*. the Attic-Ionian virgin, seen in the Muses, Canephoræ, and priestesses. 2. The Matron: the highest ideal of the matronly form is in the Juno of Argos. We have also the ideal of Ceres, Cybele, and later of Nemesis, Fortuna, Pudicitia, Pietas, the Roman empresses and vestals, as well as the beautiful virgins of Herculaneum, in the cabinet of antiquities at Dresden. 3. The Hetæra was elevated to the ideal of Venus Anadyomene. 4. The female warrior was idealized in the Pallas Athene, as the perpetual Virgin, skilled in war and the arts. To the male figures belongs, also, the gymnastic and athletic class. Polycletus created the first, forming two different ideals of young men; in his Diadymenus, the mild youth, who winds the wreath of victory round his brow, and in his Doryphorus, the ardent and warlike youth, holding the lance before him, which was the famous canon, the model of all proportions. Myron created the athletic class. His athletæ are very celebrated, particularly his Discobolus, who supports his left hand on his knee, and, bending, throws the discus, with his right hand raised backwards. He completed this class by the ideal of Hercules, and formed the ideals of the whole animal kingdom. Only one hundred years after Phidias 364, B. C., the high or ideal style gave place to the beautiful. Scopas and Praxiteles were the first in this style; they sculptured all the varieties of the dancing Bacchantes, or Thyades, in which the finest forms of beauty were joined with enthusiastic frenzy. Scopas invented the group; Praxiteles the ideals of Diana, of Venus, and of Bacchus. He was the father of a numerous family of artists. After him the beautiful style was transformed into the graceful, which gained in expression and purity what it lost in grandeur. Symmetry and proportion were most attended to. In the age of Alexander, Lysippus adopted a new style of art, by forming many portrait statues. He was the only one who was permitted to make the statue of Alexander, as Apelles alone was allowed to paint him. This last flourishing period of Grecian sculpture began 336 B. C. It contained the last class of works of the art, that of the ideal statues of kings and of warriors. Lysippus, though influenced much by Polycletus's rules of proportion, formed his bodies more slender, and his heads smaller; he also bestowed particular care upon the finishing of the hair. His statues are particularly admired for their life. Through the influence of painting, sculpture acquired the expression of feeling, of which the highest perfection, in the pathetic, is the group of Laocoön. The taste for colossal statues extended itself, and contributed to the decline of the art; excess of ornament was also connected with it. After the Macedonian and Syrian wars, 200 B. C., the Romans began to carry off the statues from the conquered countries. Paulus Æmilius adorned his triumph of three days with immense treasures of Grecian statues. The *Forum Romanum* was often hung with costly carpets, and transformed into a theatre, adorned with about 3000 statues; 12,000 were placed in the capital alone. With the statues also the Grecian artists came to Rome; but the art never became naturalized there. After the time of Sylla, the love of the art was increased to a mania. The best flourishing period of the art was Adrian's age. The highest elegance, polish, and perfection was its character. This taste continued under the Antonines, slightly degenerated; but it sunk entirely under Severus and his successors; before Constantine the Great, the art of the ancients was entirely lost. The early Christian works adhere to a fixed type. See the *Notizie dela Scultura degli Antichi e dei varj suoi Stili, del Abate Luigi Lanzi* (2d Italian ed., with annotations and copper-plates, in the *Poligrafia Fiesolana*, 1824). Sculpture revived in Italy in the thirteenth century. The modern artists worked also ably in metal. The greatest master of this first period of modern art was Michael Angelo Buonarotti. Through him and his disciples, sculpture raised its head in Western Europe. All the remains of art which had escaped destruction from barbarian violence, religious fanaticism, and natural causes, were now carefully preserved. We are chiefly indebted to the noble Cosmo and Lorenzo de' Medici for the restoration of a better style. Artists were honoured and supported, the treasures of antiquity were collected and museums instituted. The neighbouring princes vied with the Medici. Yet modern art never attained the sublimity and tranquil grandeur of the ancient. The modern artist reveals himself in his works; the ancient artist did not appear in his work. Through Buonarotti's sublime genius, the art was seduced into extravagance, and through Bernini's affected grace into mannerism and excessive ornament; the true feeling of beauty had disappeared; artists in vain endeavoured to surpass the ancients, not realizing that they had sunk too low to understand them. Through the preponderating example of France, good taste in every art declined more and more; human nature itself was distorted. The folly of fashion prevailed every where. In the eighteenth century, Winckelmann was the first who lighted the torch of modern art, and opened the eyes of his contemporaries to the elevated beauty of antiquity. The cardinal Albani and Mengs supported him; thus the new dawn of the art and of beauty was ushered in. The present age can boast of several sculptors of great merit. An apparent stagnation in art was first to come, bad taste was to be destroyed, before beauty could blossom again. Canova became the founder of a new period. Thorwaldsen stands by his side, and in many respects before him; and to judge by the progress which modern sculpture has made in the last thirty years, and the noble works which have been executed in so short a time, we may hope, that it is upon a safer route than in the sixteenth century.

The most illustrious Sculptors of Antiquity.—Earliest period.—Vulcan and Prometheus are but symbolical figures; and the ingenious Greeks denoted by the lame god and the deified man, the power and skill of art conquering matter, and the divine spirit of the mind immortalizing earthly forms. In Dædalus of Athens we behold the first great sculptor; we may place him about 1400 B. C. At the same time, Smilis, the father of statuary, lived in Ægina. Epeus is said to have made the Trojan horse. Rhœcus of Samos, 700 B. C., invented the art of moulding and casting statues in metal. Theodorus and Telecles, his sons, travelled, for the study of the art, to Egypt. The former is reported to have made the statue of the Pythian Apollo, for the temple at Samos, in two parts—one half at Ephesus, the other half at Samos—a manner of working, which was, perhaps, possible in the condition of the Egyptian art. Dibutades invented the art of making portrait figures in baked earth (*terra cotta*); his daughter Calirrhoe suggested to him this idea, by drawing the profile of her lover's shadow with coal upon the wall. Euchirus of Corinth (B. C. 663) accompanied Demaratus, the father of the elder Tarquin, to Italy, and introduced the art of modelling into Etruria. Dipœnus and Scyllis became the masters of a numerous school. Malas and his followers were among the most illustrious sculptors of that time. Canachus was the greatest master of the Sicyonian school. Perillus made the famous brazen bull (a splendid masterpiece) for Phalaris, who ruled in Sicily 564 B. C., in which the artist himself was burnt. Among the principal works in stone were those of Bathycles of Amyclæ. Callon of Ægina lived 540 B. C. Demeas of Crotona executed the statue of Milo. Iphicrates cast the brazen lioness of Leæna, who was privy to the conspiracy of Harmodius and Aristogiton against Hipparchus, and who endured the torture till death, without confessing any thing. The artist gave no tongue to the lioness, in order to express the heroic silence of Leæna. Onatas of Ægina restored the statue called the *black Ceres of Phigalea*. Ageladas of Argos is considered the master of Phidias.

Second Period.—Ideal Style.—With Phidias of Athens began the period of the high ideal style, which he created. He lived in the time of Pericles. Besides his two masterpieces, Pallas Athene and Jupiter, his Pallas of brass for Athens, his Venus Urania, his Nemesis in the temple at Marathon, and his Amazon, called *Eucnemon*, from the beauty of her limbs, deserve mention. He made but a single boy from life. His favourite disciples were Alcamenes of Attica and Agoracritus of Paros. The most celebrated works of the former were his Vulcan, his Olympian conqueror, his Cupid, his Mars, and his Venus. The second was a still greater favourite of Phidias; he contended with Alcamenes in the execution of a Venus, and was adjudged to be inferior by the Athenians only out of partiality to their fellow-citizen; he transformed his Venus to a Nemesis, and sold it at Rhamnus. Varro considered this statue the finest ever executed. Polycletus of Argos made Juno, the third chief ideal figure, a companion to the Olympic Jupiter. In the Ludovisian Juno, an imitation of her head is preserved. Polycletus sculptured, besides his famous canon, all the beautiful gymnastic positions of boys, and all the sports of youth: the highest ideal of this class is his Mercury. A tender softness was peculiar to this master, as shown in his charming Canephoræ of Athens. He chiefly cast in metal. His fellow disciple and rival was Myron of Eleutheræ in Bœotia. He executed three colossuses upon one pedestal—Minerva presenting the deified Hercules to Jupiter. The fertile genius of Myron was displayed in the choice of new and bold positions. He despised the softer forms of the Ephebi, and showed his skill in the representation of the most highly finished athletic forms. His Runner, his Slinger, and his Pancratists, are celebrated. His ideal of Hercules completed this class of forms. His Heifer, and his Sea Monster, are famous among his animal forms. But one thing was wanting to this great sculptor—grace of expression: in this he was surpassed by his rival, Pythagoras of Rhegium, who adopted the undulating line as the line of beauty, and first expressed the sinews and veins with accuracy. He created the ideal of Apollo in the position of an archer who has just shot the serpent Python. The imitation of this is the most splendid statue which we possess—the Apollo Belvedere. (See Plate LXXX, fig. 1.)

Third Period.—Beautiful Style.—Socrates, the sculptor of the clothed Graces, with Athenodorus and Naucydes, began this epoch. Praxiteles and Scopas brought the art to its highest perfection, since they united beauty with grace. The most celebrated works of Scopas are his furious Bacchante (the head, bending backwards, united the highest beauty with Bacchanalian frenzy), his Cupid, his Venus (probably the model of the Medicean), and his group,—the Triumph of Achilles, whom Thetis is conducting, after his death, to the happy islands, in which Scopas found an opportunity of introducing numberless Tritons, Nereids and sea monsters in the most charming combinations. Praxiteles, the most feeling of all sculptors, created the perfect ideals of Diana and of Bacchus. He formed the latter as a contrast to the Satyrs and Fauns, who express rudeness and licentiousness; it was soft and tender, without being effeminate; it was perpetual gayety personified in the victorious god, sporting with his companions. The Diana of this artist expressed virgin modesty, with bold activity. Homer's Nausicaa inspired him. He made, also, the admired statue of a Satyr (Periboetos), and the ideal of Eros, or Cupid. The god of love was never represented by the ancients as an infant; the true infantile representation was not admissible till after the Christian era. Eros always had the form of a boy approaching youth. Praxiteles first attempted to represent Venus entirely naked, and thus created the later ideal of the goddess. His most celebrated works are his Venus of Cos and of Cnidos. The former is covered from the hip downward; the latter entirely naked, holding her garment with her left hand over the bath. We possess imitations of both. The group of Niobe is also ascribed to this master. (See Plate LXXX, fig. 5.) His son Cephissodorus was celebrated for his Symplegma (two wrestlers with hands interlaced), and his Æsculapius. After his time, the art degenerated through the introduction of the most voluptuous representations. Praxiteles had already formed, for Phryne, a group in bronze, in which he placed a laughing Hetæra opposite to a weeping matron. Hermaphrodites, groups of Satyrs and Nymphs, were formed with great perfection of art, and equal looseness of moral sentiment.

Fourth Period.—Age of Alexander the Great.—Art could only gain through grace and softness of execution, since the high ideal beauty was on the decline. Lysippus of Sicyon appeared and became the master of elevated portrait sculpture. Among the gods, Hercules was his favourite, and he perfected the ideal figure of Neptune, designed by Euphranor. He represented Alexander from his childhood to his manhood. It is affirmed that he alone made 1500 statues; some limit this number to 610; every figure of his great groups, however, is included in this estimate. The most celebrated among these groups are, Alexander hunting, and the twenty-five equestrian statues, representing the Macedonian friends, who fell in the first attack near the Granicus, at the side of Alexander. His horses are very beautiful. Euthycrates, his son, and Apollodorus and Silanion, were great sculptors of this period. Chares of Lindus cast the famous Colossus (q. v.) of Rhodes. Agesander, Athenodorus, and Polydorus, father and sons, of Rhodes, formed the celebrated group of Laocoön; Glycon of Athens, the Farnese Hercules; Apollonius and Tauriscus, the Farnese bull. The sculptors of Rome were Greeks; we only know of them, Arcesilaus, the friend of Lucius Lucullus, and Praxiteles, the greatest modeller of the age of Pompey. He wrote five books on the most celebrated works of art. Zenodorus had formed, in Gaul, a colossal Mercury in brass, and was invited by Nero to Rome, to make a colossal statue of him, 110 feet high; the casting failed. The reclining statue of the dying Cleopatra was executed in the reign of the emperor Augustus. Cleomenes, an Athenian, made the statue of Germanicus, in the time of Tiberius. The four beautiful horses of brass, above the chief entrance of the church of St Mark at Venice, were cast during the reign of Nero. The beautiful Antinous is one of the most perfect statues of the age of Adrian.

The most Illustrious Sculptors of Modern Times.—*Earlier Period.*—1. *Italian Sculptors.* In the eleventh century, we find mention of a sculptor named Buono, in the twelfth, of Bonanno of Pisa. Niccolò Pisano, who died in 1270, was called the restorer of good taste in sculpture. Several works of his son Giovanni Pisani are still to be seen in Pisa. Andreas Orgagna, surnamed Buffalmaco, died in 1389. Luca della Robbia varnished his works in *terra cotta*, with great skill. Lorenzo Ghiberti, who died in 1455, was a very able master. His brazen gates at the Battisterio of Florence are celebrated. Michael Angelo declared them worthy to stand at the entrance of paradise. Donatello (born at Florence 1383, died 1466) enriched Venice, Florence, Genoa and Faenza with his works; a bald-headed old man, made by him in Florence, is celebrated. He formed, for the church of St Mark at Florence, the brazen statues of St Peter, St George and St Mark; the latter is particularly memorable for the question of Michael Angelo: "*Marco, perchè non mi parli?*" (Mark, why dost thou not speak to me?) His brother Simon made one of the brazen gates of the church of St Peter, and the sepulchre of Martin V., in the Lateran church. Andreas Pisano was an illustrious sculptor and engraver. Lorenzo Lotto, called Lorenzetto, was the first who endeavoured to restore antiques. Andreas Verrocchio, from jealousy of his pupils Perugino and Leonardo da Vinci, abandoned painting, and devoted himself to sculpture. He was the first who revived the art of modelling the busts of the deceased in soft substances. Rustici, born at Florence, in 1470, was the disciple of Verrocchio, and afterwards of Leon. da Vinci. The latter taught him the art of modelling, of cutting marble, of casting in brass, and perspective. His most celebrated works are a Europa, a Leda, a Vulcan, and a Neptune. Michael Angelo Buonarotti (q. v.), in his early youth, executed some astonishing works, as the head of an old woman, and the statue of Hercules. Particularly worthy of admiration are his Bacchus, the famous colossal statue of Julius II., for whose tomb he made three figures, among which is his famous Moses, his David, his Victory at Florence, and his statue of Night upon the tomb of Giulio de' Medici. Tatti, called after his birth-place Sansovino, born 1477, when a youth, at Rome, made a model of the Group of Laocoön, which, by Raphael's decision, obtained the prize, and was cast in bronze. He executed many works for Venice, among which the marble statues of the holy Virgin in St Mark's, and of John the Baptist in the church at Casa Grande, are particularly celebrated. The ease of his drapery and the line of his statues are much admired. Baccio Bandinelli, born at Florence in 1487, vied with Buonarotti. He had a great knowledge of anatomy; his manner is energetic but rude. He restored the right arm of Laocoön; his bass-reliefs upon the tombs of Leo X. and Clement VII., are famous. Benvenuto Cellini, born at Florence in 1500, was a sculptor, goldsmith and painter. Properzia Rossi, of Bologna, is the only celebrated female sculptor. Two angels in marble, which adorn the front of the church of St Petronia, and several busts, were the foundation of her fame. She represented, with much skill and delicacy, the passion of Christ, and many figures of the apostles, upon peach-stones, in bass-relief. Eleven of these peach-stones are preserved in the gallery of the marchese Grassi at Bologna. She studied the rules of architecture and perspective, and was an able painter and musician. An unhappy passion caused her early death, in 1530. She sculptured the melancholy story of her feelings in marble, and this bass-relief was her masterpiece. Guglielmo della Porta, of Milan, restored several antiques in Rome; he restored also the legs of the Farnese Hercules so well, that Buonarotti did not consider the genuine legs, which he found twenty-seven years after, superior. The beautiful statue of Justice upon the tomb of Paul III., in the church of St Peter's, is by this master, as well as the four great prophets in the niches between the columns of the first colonnade of the same church. With Bernini, born at Naples, 1598, a *second period* of Italian sculpture begins. He was a man of uncommon genius, but his boldness, his imagination, and particularly his endeavours to please, generally seduced him into irregularities; he attempted to surpass natural beauty, particularly in the dimples in the cheeks. His St Theresa and St Bibiana were his masterpieces. Alessandro Algardi (q. v.), born at Bologna, was the rival of Bernini. He was a disciple of Ludovico Caracci; and the painter is often discoverable in his works. He was the founder of a numerous school. Domenico Guido, Antonio Raggi, Ercole Ferrata, and Gabr. Brunelli, are distinguished among the numerous disciples of the two last masters. Gonnelli, called the blind man of Cambassi, lost his eyesight in his twentieth year, and made himself a sculptor by feeling alone. He executed a statue of Cosmo I., grand-duke of Tuscany, in *terra cotta*. Tubi, born at Rome, 1630, sculptured much for France. He made the famous group upon the tomb of Turenne. Camillo Rusconi, born at Milan in 1658, was an admirer of the ancient works of art, and imitated them in a masterly manner. His masterpiece is the tomb of Gregory XIII., in St Peter's. The attitude of his figures is majestic and beautiful; his style is pure, full of expression, fire and life. Angelo Rossi, born at Genoa in 1671, chiefly distinguished himself by his excellent reliefs. He followed rather the taste of the ancients than the style of Algardi, not cutting so deep, but forming rather demi-reliefs. His work of this kind, for the tomb of Alexander VIII., is the finest bass-relief in St Peter's. Gaetano Zumbo, born at Syracuse, 1656, had no other master than his own genius. He carried the working in coloured wax to great perfection. He made, for the grand duke of Tuscany, the famous representation of putrefaction, showing all its stages in five corpses, coloured after nature, with so much truth as to excite horror. A Birth of the Saviour, and a Descent from the Cross, are among his masterpieces.

2. *French Sculptors.*—Jean Goujon, of Paris, is the first distinguished sculptor in France: and his most celebrated work is the fountain of the Nymphs, in the market-place *des Innocents* at Paris, which he began under Francis I., and finished in 1550, under Henry II. He was also an architect and an engraver. He perished, in 1572, in the massacre of St Bartholomew's. Germain Pilon, of Paris, had much grace, but his style was often impure. He first accurately distinguished the various materials of the drapery. The group of the three Christian Virtues, in white marble, for the church of St Celestine, is a noble work. Jean de Boulogne was born at Douay, in 1524. He went early to Rome, and was Buonarotti's disciple. He was on the point of leaving Rome on account of his poverty, when an amateur at Florence gave him a piece of marble, out of which he formed a Venus, by which he gained celebrity. His most celebrated works are Sampson and a Philistine, at Florence, his colossal Neptune, and his Rape of the Sabine Women, in the same place, his flying Mercury, in brass, and his Jupiter Pluvius, the greatest colossus of modern art. His disciple Tacca made the horse for the statue of Henry IV., upon the Pont-neuf, and the equestrian statue of Philip IV., king of Spain, represented at full speed in *Buen Retiro*. Jacques Sarrassin, born at Noyon, 1590, was educated in Rome, and united genius with taste and grace. The Caryatides, which adorn the great pavilion of the old Louvre, and the Group of Romulus and Remus in Versailles, are among his masterpieces. He founded a productive school, and died in 1660. François Anguier made the

beautiful tomb of the duke of Montmorency, in the church of St Mary at Moulins, and his brother Michael, the statues and reliefs of the Porte St Denis. Théodon made the beautiful statue of St John in the Lateran, and the two Groups in the garden of the Tuileries, Atlas transformed into a rock, and Phaetusa changed into a poplar tree. He died in 1680. Lerambert made several groups for Versailles. Puget, born at Marseilles, in 1622, was a painter, architect and sculptor. If he had more carefully studied the antique models, he would have surpassed all modern sculptors. His style was bold and powerful. His most celebrated works are his two colossal Termini, in the city hall of Toulon, his statue of Milo in the park of Versailles, and his Dying Gladiator. The brothers Marsy, born in 1624 and 1628, at Cambray, made the statues of Bacchus and of Latona in bronze, at Versailles, and the famous Group of Horses at the bath of Apollo, in the same place. François Girardon, born at Troyes, in 1630, was the most celebrated sculptor of the age of Louis XIV. His equestrian statue of this king, twenty-one feet high, which stood formerly on the royal Place Vendome, was the first work of modern times, which was cast in a single piece. Most of the works of Girardon are formed after designs by Le Brun, and adorn the park of Versailles. Pierre le Gros, born at Paris, 1656, lived almost all his life in Rome, and is one of the best French artists. His most celebrated works are, a Roman Maid in the garden of the Tuileries, St Dominic in the church of St Peter's, the Group of St Ignatius, and St Theresa in the church of the Carmelites at Turin. He died in 1790, deeply mortified by the neglect of the academicians at Paris. Nicolas Coustou, born at Lyons, in 1658, had much taste and ease, but entirely a French manner. His brother Guillaume surpassed him, and finished, in bass-relief, the Passage of the Rhine, which the former had commenced. Edme Bouchardon's style was soft rather than elevated, more regular than bold. Lambert Adam, born at Nancy, in 1700, made the two statues, the Seine and Marne, eighteen feet high, at St Cloud, and the Group of Neptune and Amphitrite at Versailles. His style is rude and wild. Lemoyne distinguished himself by his portraits: he was animated, but incorrect. René Slodz, born at Paris, in 1705, worked in a simple style of grandeur: few understood drapery better than he, yet his figures are not always correct. Baptiste Pigalle, born at Paris, 1714, owed his success entirely to his great industry. His Mercury and Venus are celebrated: the king of Prussia purchased them both. The celebrated tomb of marshal Saxe at Strasburg is his work. A Boy with a Cage, from which the bird had escaped, by its truth and expression, gained him universal approbation. He died in 1785. Etienne Falconnet was invited to Petersburg, to make an equestrian statue of Peter the Great, in bronze. Mademoiselle Collot made the model of the head.

3. *German Sculptors.*—Long before Albert Dürer's time, some excellent sculptors flourished in the south of Germany, whose industry and excellence are proved by their works, which adorn the churches, city halls and fountains of Nuremberg and other places. We even find marks of still more ancient sculpture, in the numberless equestrian figures and images of saints, which, in all the minsters, and particularly in that at Cologne, cover even the smallest turrets. The names of these masters are unknown; the first probably came from Byzantium. Albert Dürer, whose genius embraced various departments of the fine arts, produced excellent works of sculpture, large and small, comprehending insulated figures, and figures in relief in wood and stone. Leonard Kern, born at Forchtenberg, in 1580, studied in Italy, and worked with much success in wood, stone and ivory. Gottfried Leygebe, born at Freistadt, in Silesia, 1630, died at Berlin, 1683, was the first who formed small equestrian figures, of cast iron. He represented the emperor Leopold I., at Copenhagen, Charles II. of England, as St George, at Dresden, and the elector Frederic William, as Bellerophon, at Berlin. Rauchmüller worked on the column of the holy Trinity at Vienna, which was finished 1693. Andreas von Schlüter, born at Hamburg, 1662, studied in Italy, chiefly the works of Buonarotti, and was invited to Berlin, where he adorned the arsenal and formed the model of the excellent equestrian statue of the elector Frederic William, which was cast, 1700, by John Jacobi. Balthasar Permoser, born in 1650, in the district of Salzburg, died, 1732, at Dresden, has left many excellent works at Berlin, Dresden and Leipsic. There are also other German sculptors of note.

4. *British Sculptors.*—It is only within the present century, that there could properly be said to exist a British school of sculpture. Nearly all the sculptors who flourished in England during the last century, were foreigners. Our own day, however, can boast of several native artists of the most distinguished excellence. We may mention particularly, Flaxman, Chantrey, Baily, Carew, Westmacott, and others. See Plate LXXXI. for figures by Flaxman, Chantrey, and Baily. See also preliminary dissertation on the fine arts in this work.

5. *Dutch, Swedish and Russian Sculptors.*—Francis Duquesnoy, born at Brussels, in 1594, known under the name *il Fiamingo.* He had, like Algardi, a peculiar genius for representing the beauty of children, and succeeded in flying and rising figures better than any one before him. He formed an intimate friendship with Poussin, and both gave themselves, with an unlimited devotion, to art. His Andrew, twenty-two palms high, in St Peter's at Rome, is one of the finest statues there; and his Susanna at Loretto is much admired on account of the noble attitude of the figure, its mild, pious expression, and beautiful drapery. Buyster, Slodz, Quellius and Van Obstal were Dutch sculptors of merit. Among the Swedish sculptors we ought to mention, above all, Sergel. The Russian Pawloff was a portrait sculptor of reputation. Launitz, the disciple of Thorwaldsen, is distinguished in the present time.

6. *Spanish Sculptors.*—Sculpture has flourished in Spain since the eleventh century, and Aparicio of Castile made, as early as 1033, a bass-relief in gold and ivory, representing, in twenty-two divisions, the Hunt of St Millan, which is preserved in the convent of Yuso, and is admirable for its proportions and grace. The convents and churches gave employment to the artists. A hundred and sixty distinguished Spanish sculptors are enumerated.

Latest Period.—Cavaceppi, in Rome, makes the transition to the great sculptors of the present time. Canova, who died in 1822, was chiefly distinguished for grace of style and perfection of execution. (See representations of his 'Venus' and 'Beneficence,' Plate LXXXI. figures 22 and 25.) The Dane Thorwaldsen, in heroic figures, is superior to his contemporaries in the grandeur of the forms, and, above all, in strength of expression. Both united, reflect much splendour on the age, and in Thorwaldsen's works especially, much truth, united with a beautiful conception of nature, and a noble composition, is visible, so that he deserves to be called one of the greatest masters of all ages. (See his Hebe, plate LXXXI. fig. 20.) We ought also to mention the names of Dannecker in Stuttgard, whose Ariadne equals the ancient in beauty, Schadow, Rauch and Tieck in Berlin, and Chaudet and Houdon in Paris. Count Cicognara has published a continuation of the works of Winckelmann and Agincourt (*Storia della Scultura dal suo Risorgimento in Italia*, &c.) until Canova (2d ed., Prato, 1824, 4 vols., with copper-plates).

Modelling.—Before any object is executed in stone, it is the practice of sculptors to complete a representation of their design by modelling it in clay, or some other soft material. The genius of the artist is displayed altogether in the model; for the process of afterwards copying the model in stone is chiefly mechanical, and may often be executed by another person, as well as by the sculptor himself. When a clay model is taken, if the proposed figure be large, a frame of wood or iron is erected, to give support to the limbs and different parts of the figure. Upon this frame a proper quantity of wet clay is distributed and wrought into the form of the intended statue. The moulding of the clay is performed with the hands, and with various instruments of wood and ivory. When the model is complete, copies may be taken from it, either by casting them in plaster, or in metal, or by chiselling them in marble. To execute a statue in marble, which shall exactly correspond to a pattern or model, is a work of mechanical, rather than of inventive skill. It is performed by finding, in the block of marble, the exact situation of numerous points, corresponding to the chief elevations and cavities in the figure to be imitated, and joining these by the proper curves and surfaces at the judgment of the eye. These points are found by measuring the height, depth, and lateral deviation of the corresponding points in the model; after which, those in the block are found by similar measurements. Sometimes the points are ascertained by placing the model horizontally under a frame, and suspending a plumb-line successively from different parts of the frame, till it reaches the parts of the figure beneath it. Sometimes an instrument is used consisting of a moveable point, attached by various joints to an upright post, so that it may be carried to any part of the statue, and indicate the relative position of that part in regard to the post. Machines have also been contrived for cutting any required figure from a block, the cutting instrument being directed by a gauge, which rests upon the model in another part of the machine. Marble is wrought to the rough outline of the statue by the chisel and hammer, aided by the occasional use of drills and other perforating tools. It is then smoothed with rasps and files, and, when required, is polished with pumice stone and putty. The hair of statues is always finished with the chisel; and for this object, very sharp instruments, with different points and edges, are necessary. The ancient sculptors appear to have relied almost wholly upon the chisel, and to have used that instrument with great boldness and freedom, such as could have been justified only by consummate skill in the art. The moderns, on the contrary, approach the surface of the statue with great caution, and employ safer means for giving the last finish. Some of the most celebrated antique statues, such as the Laocoön, the Apollo Belvedere, and Venus de' Medici, are thought to have been finished with the chisel alone.—Although marble has been the common material of sculpture, both in ancient and modern times, yet other substances have been occasionally made subjects of the chisel. Statues of porphyry, granite, serpentine and alabaster, are found among the remains of antiquity. Other materials, of a less durable kind, were also employed. Some of the principal works of Phidias were made of ivory and gold, particularly his colossal statues of Jupiter Olympius and Minerva, at Athens.

Bronze Casting.—Statues intended to occupy situations in which they may be exposed to violence, are commonly made of bronze. This material resists both mechanical injuries and decay from the influence of the atmosphere. The moulds in which bronze statues are cast, are made on the pattern, out of plaster and brick dust, the latter material being added to resist the heat of the melted metal. The parts of this mould are covered on their inside with a coating of clay, as thick as the bronze is intended to be. The mould is then closed, and filled on its inside with a nucleus or core of plaster and brick dust, mixed with water. When this is done, the mould is opened, and the clay carefully removed. The mould, with its core, are then thoroughly dried, and the core secured in its central position by short bars of bronze, which pass into it through the external part of the mould. The whole is then bound with iron hoops, and, when placed in a proper situation for casting, the melted bronze is poured in through an aperture left for the purpose. Of course, the bronze fills the same cavity which was previously occupied by the clay, and forms a metallic covering to the core. This is afterwards made smooth by mechanical means.

SCUPPERS; certain channels cut through the water-ways and sides of a ship at proper distances, and lined with sheet-lead, in order to carry the water off the deck into the sea.

SCUPPER-HOSE; a leathern pipe or tube nailed round the outside of the scuppers of the lower decks, and which, by hanging down, prevents the water from entering when the ship inclines under a pressure of sail.

SCURVY (*scorbutus*); a disease of a putrid nature, prevalent in cold and damp climates, and which chiefly affects sailors and such as are shut up in besieged places; owing, as is supposed, to their being deprived of fresh provisions, and a due quantity of acescent food, assisted by the prevalence of cold and moisture, and by such other causes as depress the nervous energy, as indolence, confinement, want of exercise, neglect of cleanliness, much labour and fatigue, sadness, despondency, &c. These debilitating causes, with the concurrence of a diet consisting principally of salted or putrescent food, will be sure to produce this disease. It seems, however, to depend more on a defect of nourishment than on a vitiated state; and the reason that salted provisions are so productive of the scurvy is, most probably, because they are drained of their nutritious juices, which are extracted and run off in brine. As the disease is apt to become general among the crew of a ship, when it has once made its appearance, it has been supposed by many to be of a contagious nature; but the conjecture seems by no means well founded. The scurvy comes on gradually, with heaviness, weariness, and unwillingness to move about, together with dejection of spirits, considerable loss of strength and debility. As it advances in its progress, the countenance becomes sallow and bloated: respiration is hurried on the least motion; the teeth become loose; the gums are spongy; the breath is very offensive; livid spots appear on different parts of the body; old wounds, which have long been healed up, break out afresh: severe wandering pains are felt, particularly by night; the skin is dry; the urine small in quantity; and the pulse is small, frequent, and, towards the last, intermitting; but the intellect, for the most part, clear and distinct. By an aggravation of the symptoms, the disease, in its last stage, exhibits a most wretched appearance. Scurvy, as usually met with on shore, or where the person has not been exposed to the influence of the remote causes before enumerated, is unattended by any violent symptoms. Slight blotches, with scaly eruptions on different parts of the body, and a sponginess of the gums, are the chief ones observed. In the cure, as well as the prevention of scurvy, more is to be done by regimen than by medicines, obviating, as far as possible, the several remote causes of the disease; but particularly providing the patient with a more wholesome diet and a large proportion of fresh vegetables; and it has been found that those articles are especially useful, which contain a native acid, as oranges, lemons, &c. Where these cannot be procured, various substitutes have been proposed, of which the best appear to be the inspissated juices of the same fruits, or the crystallized citric acid. Vinegar, sour crout, and farinaceous substances, made to undergo the acetous fermentation, have likewise been used with much advantage; also brisk fermenting liquors, as spruce-beer, cider, and the like. Mustard, horse-radish, garlic, and other substances of a stimulating character, promoting the secretions, are useful to a certain extent.

SCURVY GRASS (*cochlearia*); a genus of cruciferous plants, mostly inhabiting the extreme northern parts of the globe. It consists of herbaceous plants, having alternate, and, usually, entire leaves, and their flowers disposed in terminal racemes, and ordinarily white. The horse-radish is one of them, but is much larger, and has a different aspect from the others, but resembles them in the sensible properties of the leaves and stems. The common scurvy-grass (*C. officinalis*) grows wild on the sea-shore of Greenland, Iceland, and the north of Europe: the leaves are small, angular, sinuate and sessile, and are sometimes eaten in salads: the taste is acrid and slightly bitter: they are antiscorbutic, and stimulating to the digestive organs. About twenty species of *cochlearia* are known.

SCUTARI, or ISKIUDAR; a town of Asiatic Turkey, in Natolia, on the Bosphorus, opposite to Constantinople, called by the ancients *Chrysopolis;* population, about 33,000. It is considered a suburb of Constantinople, and serves as an emporium and rendezvous to the caravans of Asia. The Turks at Constantinople are interred at Scutari, and the burying grounds here are the handsomest in the empire. See *Constantinople.*

SCUTARI, or ISKANDERIE, in Albania, the capital of a pachalic, is situated at the end of a lake to which it gives its name. It was anciently the residence of the kings of Illyricum. Population, 15,000.

SCUTTLING; the act of cutting large holes through the bottom, sides or decks of a ship, for various occasions, particularly when she is stranded or overset, and continues to float on the surface, in order to take out the whole or part of the cargo, provisions, stores, &c.—To *scuttle a ship;* to sink her by making holes through her bottom.

SCYLLA; a daughter of Nisus, king of Megara, who became enamoured of Minos, when that monarch besieged her father's capital. She delivered Megara into his hands, on his promising to marry her: but Minos afterwards treated her with such contempt that she threw herself from a tower into the sea; or, according to some accounts, she was changed into a lark by the gods, and her father into a hawk.—A daughter of Typhon or Phorcis, was loved by Glaucus. Scylla scorned his addresses, and the god applied to Circe. But she became enamoured of him herself, and, instead of giving him assistance, attempted to make him forget Scylla, but in vain. To punish her rival, Circe poured the juice of some poisonous herbs into the waters of the fountain where Scylla bathed; and no sooner had the nymph touched the place, than she found every part of her body below the waist changed into frightful monsters like dogs, which never ceased barking. This metamorphosis so terrified her, that she threw herself into that part of the sea which separates the coast of Italy and Sicily, where she was changed into rocks, which continue to bear her name, and which were deemed very dangerous to navigators, as was also the whirlpool of Charybdis, on the coast of Sicily.

SCYTHIANS. This name was very vaguely used by ancient writers. It was sometimes applied to a particular people, and at others was extended to all the nomadic tribes which wandered over the regions to the north of the Black and the Caspian seas, and to the east of the latter. Scythia is used in the same indefinite manner, sometimes for the country of the Scythians, and sometimes for those now called Mongolia and Tartary. The Scythians may be distinguished into Asiatic and European. Among the former, the ancients included a great number of northern nations, with whose origin they were unacquainted, and who were probably of different races. The Scythians were for some time a ruling people in Asia. They are considered as the progenitors of the Turks, Tartars and Manchoos: the ancients considered the Persians, Parthians and Bactrians as their descendants. The European Scythians, in the time of Herodotus, inhabited the country from the Ister (Danube) to the sources of the Dniester and the Dnieper, in the neighbourhood of the Don, and along the northern shores of the Black sea. Of this region, that portion extending from the Danube to the city of Carcinitis, was called *Old Scythia;* and the peninsula (Taurida) to the Borysthenes was called *Little Scythia*, which name, in Strabo's time, included the country as far as the Danube, formerly occupied by the Thracians, and therefore comprised *Old Scythia.*

SEA. See *Ocean.*

SEA-BATHING has been found very salutary in several complaints, as diseases of the glands of all kinds, and of the skin in scrofula and a scrofulous predisposition, exhausting sweats, and tendency to catarrhs, chronic nervous diseases, particularly hysteric attacks, epilepsy, St Vitus's dance; also sometimes in chronic rheumatism. But it must not be used in the case of plethora, inclination to congestions and discharges of blood, diseases of the heart, tendency to pulmonary consumption, obstruction and induration of internal organs. The great proportion of salt and of animal substance in the sea-water, the constant motion and swell of the waves, the sea air, and the very sight of the sea, together with the excitement caused, at least in the case of timid persons, from overcoming a degree of fear, contribute to the effect of sea-bathing. Machines are sometimes used for conveying patients into the water. In these, being protected from observation, the bather can enjoy the sea perfectly undressed, which is much preferable to going into the water with a dress on.

SEA BEAR. See *Seal.*

SEA ELEPHANT. See *Seal.*

SEA HORSE. This term is often applied to the walrus, but more frequently to a small, insignificant, bony fish (*hippocampus*), the head of which bears some remote resemblance to that of the horse. The usual length of this fish is five or six inches; the body is compressed laterally, and is encased in prominent, bony, rib-like scales. The tail is much smaller than the body, destitute of a terminal fin, tapering gradually to a point, and curls up when dried; in which state it is common in museums. The mouth is small, and situated at the extremity of a long, tubular snout, as in the other pipe-fish. The species of *hippocampus* are found in almost every sea, and live on small marine insects. As some similarity has been imagined between the head of this fish and that of the horse, the dorsal fin has likewise been compared to a saddle, and the filaments on the back of the neck to a mane.

SEA-KAIL (*crambe maritima*); a cruciferous plant, growing wild in Europe, upon sandy sea-shores. The whole plant is entirely smooth and glaucous; the stems are about two feet high and branching, bearing fleshy leaves, some pinnatifid, and others sinuate, undulate, and crisped; the flowers are disposed in a terminal panicle. From time immemorial, the common people have been in the practice of watching when the young shoots and leaf-stalks begin to push through the sand, and cutting them off below the surface of the ground for boiling as greens. About eight years ago, it was first introduced into the gardens as a culinary vegetable; and now it is very common, as such, in many parts of Europe. It is planted in a deep, sandy soil, and is blanched either by sand, ashes, litter, or by covering with flower pots, or any other opaque cover. It is forced either by taking up the roots, and planting them in a hot-bed, or in the border of a forcing house, or by surrounding them with litter in the open garden. Each plant should have a cover to keep off the dung from the young shoots, as well as to ensure their being blanched. No plant is so easily forced; and, unlike asparagus, it yields produce the first spring after raising from seed.

SEA LION. See *Seal.*

SEA SERPENT. The existence of an enormous marine animal of the serpent shape, and thence called *sea serpent*, or *sea snake*, is mentioned by Pontoppidan (q. v.), in his Natural History of Norway, and has since been noticed by some voyagers. The former represents it to be about 600 feet in length, with apparently about twenty-five folds on its back. Within the last twenty years, a great number of persons, among them many mariners, have asserted, in the most undoubting manner, that they have seen a similar creature on the coasts of the United States of America, chiefly on those of New England. By different witnesses, the size of the animal has been differently estimated at from one hundred to forty-five feet in length; but all accounts agree in regard to the protuberances on its back, its vertical sinuosities, and its serpent-shaped head. A more particular account of the appearance and habits of this animal, as far as they have been observed, may be found in Silliman's Journal of Science for April, 1820.

SEA-SICKNESS (*nausea marina*); the nausea (from *ναυς*, a ship), retchings and vomitings experienced at sea by those unaccustomed to a sea life. The principal cause of the sickness is, doubtless, the motion of the vessel, and similar effects are sometimes produced by riding in a carriage; but it is often aggravated by the smells and effluvia of the vessel. Noxious gasses are evolved by the bilge-water; and chloride of lime or ammonia have been recommended for counteracting their effects and disinfecting the ship.

SEAL. Linnæus united the seals under the genus *phoca;* but later naturalists have recognised in them a group of marine quadrupeds, composed of several natural genera, which differ exceedingly in their dentition, as well as in external characters. The form of the body bears a general resemblance to that of a fish, and the short limbs are chiefly enveloped in the common integument, the part appearing externally serving the purpose of a fin or paddle; these flippers have five toes provided with nails, and united by a membrane. The tail is very short and rudimentary. The eye is large, the nostrils open or close at the will of the animal, and the external ear, when it exists, is very small. The upper lip is provided with strong whiskers. The interior structure of the seals is precisely similar to that of land quadrupeds; and atmospheric respiration is indispensable to their existence, although they are capable of remaining a long time under water. The seals live in herds more or less numerous, along the shores of the sea, and are fond of sunning themselves upon the sea-beaches, rocks, or ice-banks. Upon uninhabited coasts, they bring forth and suckle their young, and exhibit the most tender solicitude for their welfare. They are easily tamed, become strongly attached to their keepers, recognise them at a distance, and seem to be endowed with an unusual portion of intelligence; in short, they have many traits of character in common with the dog, as well as many points of external resemblance; hence their very common appellation of *sea-dogs*. They are extremely active in the water, but upon land are easily overtaken and killed. The form of their teeth and jaws shows them to be carnivorous, and their food consists of fish, crabs, and sea-birds, which they are enabled to surprise while swimming. In the Arctic regions, seals are often found under the ice, at the distance of many miles from open water, and form circular breathing holes, even though the ice be several feet in thickness; these openings are kept clear, but the surface is permitted to freeze over partially, so as to conceal them effectually, except from an experienced eye. Seals become extremely fat, and their skins and oil have now become a very important article of commerce. The oil is pure, and adapted to all the purposes for which whale-oil is used; and the skins are extensively employed in trunk-making, saddlery, by hatters, &c. Expeditions are fitted out, both in Europe and in the United States of America, for the sole purpose of catching seals.

The common seal of Europe (*phoca vitulina*) grows to the length of three feet; the colour of the fur is yellowish-gray, with irregular blackish spots. The *phoca lagura* is a species which inhabits Newfoundland. The size is the same as the preceding; the colour silvery-gray, with blackish-brown spots; the sides and under surface almost white; the nails are strong and black; the tail woolly. Three other species of seals inhabit the Greenland seas—*P. Groenlandica*, *P. hispida*, and *P. barbata*. The latter attains the length of ten feet. It is probable that others inhabit the coasts of America; but the species of seal, in general, are not well understood. The hooded seal (*stemmatopus cristatus*) is remarkable for a globular sac, susceptible of inflation, which is situated upon the summit of the head of the males. It grows to the length of seven or eight feet, and inhabits the seas about Greenland and Newfoundland. The sea-elephant (*macrorhinus proboscidea*), next to the cetacea, is one of the largest of the mammalia, attaining the length of twenty-five or thirty feet. It inhabits the Antarctic seas, and is found upon the southern coasts of Australasia, Juan Fernandez, and the neighbouring parts of South America. It is remarkable for the faculty which the male possesses of elongating the upper lip into a sort of proboscis: this power is only exerted at times. The canine teeth form stout tusks. The voice of these animals resembles the lowing of cattle. The sea-bear (*arctocephalus ursinus*), so named from the fur and shape of the head, inhabits the coasts of the North Pacific, and is also said to be found in the southern hemisphere. It grows to the length of five or six feet, and has small external ears. The membrane of the hinder feet is prolonged into as many lobes as there are toes; and the fore feet are placed very far back. The colour of the fur is brown, and when old takes a grayish tint. The sea-lion (*platyrhynchus leoninus*) grows to the length of from six to ten feet, and is said to inhabit both the northern and southern coasts of the Pacific. The colour is yellowish brown; and the males have a large mane upon their necks, which partly covers their head and shoulders. The nails of the fore feet are very small, and in part wanting. The voice of the males is very powerful.

SEAL, SEALING-WAX. To seal important documents is a very ancient custom. Writers on diplomatics mention, besides metals, five substances on which impressions were made, or with which letters and public acts were sealed, viz. *terra sigillata* (q. v.), cement, paste, common wax, and sealing wax. The *terra sigillata* was used by the Egyptians, and appears to have been the first substance employed for sealing. The Romans were acquainted with sealing-earth, and used also clay and common wax, which has been employed for sealing, in Europe, since the earliest times; but writers on diplomatics are not agreed whether white or yellow wax was first used. In the course of time, it was coloured. Impressions on paste or dough are of a much later origin. Proper diplomas were never sealed with wafers; but kings were accustomed to seal their letters with this paste before the invention of sealing-wax. Maltha also was used for seals. (See *Cement.*) Some writers assert that sealing-wax was invented about 1640, by a Frenchman, named Rousseau. It was called, in France, *cire d'Espagne* (Spanish wax). At the time of its invention, a kind of gum lac, that was only once melted, and coloured a little red, was called Portugal wax (*cire de Portugal*). That sealing-wax was either not at all or very little known in Germany, at the beginning of the sixteenth century, may be inferred from its not being mentioned either by Porta or Wecker. The French have supposed that sealing-wax was used earlier in the East Indies than in Europe; but Beckmann, in his History of Inventions, declares himself unable to decide this point. The oldest known seal, made of our common sealing-wax, is that found by Mr Roos on a letter from London, dated August 30, 1554, and addressed to the rheingrave Philip Francis von Daun, by his agent in England, Gerard Hermann. The next seal, in the order of time, is one of the year 1561, on a letter written to the council of Görlitz at Breslau, found in the archives of Görlitz. Mr Beckmann mentions a series of other old seals. The earliest mention of sealing-wax in printed books, is probably contained in the *Aromatum et Simplicium aliquot Historia, Garcia ab Horto auctore* (Antverpiæ, 1574). It was first printed in 1563; and it appears from this that sealing-wax was then in common use with the Portuguese. The most ancient printed receipt for making sealing-wax is in a work by Samuel Zimmermann, of Augsburg, entitled *Neu Titularbuch* (1579); and it is remarkable that nothing is said of gum lac, at present the principal ingredient in sealing-wax, at least in that of the best quality: the composition approaches, on the contrary, very near to that which, in diplomatics, is called *maltha.* This invention, therefore, one might conclude, was not brought from the East Indies. At the time when writing was not a common accomplishment, the seal very often took the place of the name, so that we find eighty-eight seals attached to the instrument which sets forth the election of Ladislaus, by the Hungarian estates, in 1440, and 350 seals attached to the statement of grievances, sent, in 1415, by the Bohemian estates, to the council of Constance, as we find at present crosses made by Indian chiefs when they conclude treaties by written instruments. To protect seals against falsification, a counter seal (*contrasigillum*) privy seal in England) was often put on the reverse of the large seal. In Germany, this was first done under the emperor Henry III.; in France, under Louis VII. These small seals were in later periods used alone in cases of minor importance. As the seal was so important, the keeper of it was always a high officer. With the Greek emperors, the keepers were the *logotheti;* with the Merovingians, the *referendarii;* with the Carlovingians, and later emperors, the chancellors. The elector of Mayence, the arch-chancellor of the German empire, was, down to the latest times of the empire, the keeper of the seals. In France, the chancellor was also, originally, the keeper of the seals; but as the office of chancellor could not be taken from him, a *garde des sceaux* was appointed if the chancellor fell into disgrace. The *garde des sceaux* had the rank, official dress, and privileges of the chancellor. The seals were kept in a silver box, of which he was to carry the keys continually with him. The royal edicts and patents were sealed with green wax. Under the republic, all the royal seals were destroyed. All the impressions made with them were likewise ordered to be destroyed, and the greatest part actually were so. Napoleon adopted a seal with impressions on two sides, according to the fashion of the royal times. The chancellors in France were formerly obliged to seal the royal orders, and it was made their chief duty to attach the seal to none which were inconsistent with law or justice. In England, the office of the lord chancellor and lord keeper of the great seals have been united since the time of Elizabeth; but for the privy seal there is still a particular officer, the lord keeper of the privy seal,—generally called *lord privy seal,*—through whose hands all instruments pass before the great seal is affixed to them. The English seal has only one side, and there are two great seals, different in dignity. The most important contains the portrait of the sovereign, the second the royal arms. From the privy seal is to be distinguished the signet, which is kept by the secretary of the cabinet. (See *Keeper.*) In Scotland, there is also a lord keeper of the great seal, a lord privy seal, and a particular officer for law papers, called *keeper of the signet*. See *Sphragistics*.

SEAMEN. It is the policy of every nation aspiring to maritime power, to increase the number of its seamen. This is one reason for promoting fisheries, as the nursery for the supply of the navy. The English laws subject men of this class to a peculiar hardship, little consonant to the spirit of the British constitution, as they are liable to be forcibly seized and detained in the naval service. The power of impressing seamen into that service has been a matter of some dispute, and submitted to with great reluctance. Sir Michael Foster has shown that impressments are of very ancient date, and have been uniformly practised for a long series of years; whence he concludes this practice to be a part of the common law. It is also recognised in many statutes, such, for instance, as exempted certain persons from impressment, though the power of impressing is not expressly granted in the acts of parliament. Sir William Blackstone says this practice is only defensible from public necessity, to which all private considerations must give way.

SEAPOYS. See *Sepoys*.

SEARCH, Right Of. See *Prize*.

SEASONS. The year is remarkably diversified by the seasons, which depend upon the oblique position of the sun's path through the heavens, whereby this luminary rises to different heights above the horizon, making the day sometimes longer, and sometimes shorter, than the nights. When the sun rises highest at noon, its rays fall most nearly in the direction of a perpendicular, and consequently a greater number is received upon any given spot; their action, also, at the same time, continues the longest. These circumstances make the difference between summer and winter. It is true, that the sun is sometimes nearer to us by one thirtieth of his whole distance than at others. This is evident from his diameter being found, by actual measurement, to be one thirtieth larger at one time of the year than at the opposite. But the greatest proximity in the northern hemisphere takes place in winter; the sun is farthest from us in July, and nearest in January; and the difference between summer and winter temperature would undoubtedly be greater than it now is, if the sun were to remain at the same invariable distance through the year. In southern latitudes mid-winter occurs in July, when the sun is at his greatest distance. This may be one cause of the excessive cold which prevails in high southern latitudes, as at Cape Horn and about the south pole, beyond that which belongs to similar latitudes on this side of the equator. It is found, that the sun does not rise so high in summer, or descend so low in winter, at the present time, as it did formerly, in other words, the obliquity of the ecliptic, which is half the difference between the sun's greatest and least meridian altitudes, is growing less and less continually, and the seasons are thus tending, though slowly, towards one unvaried spring. This diminution of the sun's utmost range north and south, since the time of the earliest observations, or during a period of 3000 years, amounts to nearly a fiftieth part of the whole quantity. This may be one of the causes of a melioration of winter, which seems to be so considerable in those places where there are the means of making a comparison of the degree of cold that has prevailed at different times. The year is naturally divided into four periods by the equinoxes and solstices, or those epochs when the day is equal to the night, namely, 21st of March and 23d of September, and those when there is the greatest difference, namely, 21st of June and 22d of December. Our winter, spring, summer and autumn (q. v.) have reference to these epochs, although their commencement and termination do not correspond exactly to the astronomical times above indicated. We are apt to imagine, that the four seasons are equal to each other, and that spring and summer are together just half the year. This is not the case, however, more especially with respect to the natural periods, so denominated. If, for example, we compare the time from the 21st of March to the 23d of September with the rest of the year, we shall find a difference of about one week, the former being the longer. This benefit of a long summer is confined, at present, to the northern hemisphere; but this natural distinction is not a permanent one. This longer continuance of the sun in the northern hemisphere arises from the particular position of the sun's oval orbit, or path through the heavens. We have already stated, that the sun is nearest to us in the winter season: in other words, the earth is nearest to the sun, and on this account its motion is more rapid, so that the part of the orbit from the autumnal equinox (September 23d) to the vernal (March 21st), is completed a week sooner than the other half, in which the motion is slower. (See *Equinox*, and *Precession of the Equinoxes.*) But the point of the sun's nearest approach, or perihelion, on the position of which the above-mentioned physical advantages depend, is in motion, whereby we are gradually losing the benefit of a prolonged summer, and in about 5000 years shall cease to enjoy any such privilege. In about 10,000 years the condition will be reversed, and the southern hemisphere will be the favoured portion of the globe. It may be worth mentioning, that at the date fixed by chronologists for the first residence of man upon the earth, the sun's influence was equally distributed to the two hemispheres. See *Calendar*, and *Year*.

SEBACIC ACID is obtained from tallow, and was at first called *acid of fat*, but is now known to be *benzoic acid*, contaminated with some unknown substance derived from the fat which alters some of its properties.

SEBASTIAN, St, a saint of the Roman calendar, who, according to the legend, was born at Narbonne, and lived during the reign of Diocletian and Maximian, towards the end of the third century. He distinguished himself in the military service, and rendered great assistance to the Christians, but was finally arrested and carried before Diocletian. The emperor, finding promises and threats vain, ordered him to be shot, and he was left for dead, pierced through with a thousand arrows. A woman, who came by night to inter his body, finding signs of life in him, took him home, and nursed him till he recovered. He then presented himself before Diocletian, and remonstrated with him on his cruelty; whereupon the emperor ordered him to be beaten to death with clubs, and his body to be thrown into the common sewer. His relics were carried to Soissons, in the ninth century, whence they were dispersed through France, Spain, Germany and the Netherlands. St Sebastian is invoked against the plague. His day is the 20th of January. There are many pictures of this saint, by the most eminent painters. He is generally represented tied to a tree, with arrows sticking in his body.

SEBASTIAN, Don, king of Portugal, posthumous son of the Infant John and of Joanna, daughter of Charles V., was born in 1554, and ascended the throne in 1557, at the death of his grandfather, John III. He showed a great love for knowledge, and was educated, unfortunately, in an injudicious way, by his guardian, Catharine of Austria, wife of John III. (sister of Charles V). Fanaticism took the place of piety in his mind, and Quixotism that of bravery. In order to distinguish himself from all other princes, he assumed the title of "Most obedient king," as the king of France was styled "Most Christian king," and the king of Spain "Most Catholic king." His devotion to the church was only equalled by his aversion to unbelievers. He conversed with the Jesuits around him on nothing but the happy moment when he should shed the blood of the Moors. His adventurous spirit appeared in an expedition which he made at the age of twenty years, with 800 or 900 Portuguese, to Tangier, among the mountains of the northern coast of Africa, where he fell upon the unsuspecting inhabitants. His success on this occasion led him to undertake more daring enterprises. The nephew of the sheriff of Fez and Morocco, Muley Mohammed, was involved in an open war with his uncle, whom he aimed to deprive of the throne; and Sebastian promised him his assistance, hoping to effect something for Christianity and the fame of Portugal. He communicated his design to Philip II., who, according to some authors, earnestly dissuaded him from it; according to others, he not only encouraged him, expecting, in case of his death, to be made king of Portugal, but even promised him fifty galleys and 10,000 soldiers. In spite of the admonitions of the widowed queen, and the representations and offers of Muley Moloch, the sheriff of Morocco, who promised to cede to him four fortified places on the coast of Africa, he equipped a fleet and an army, part of which he had collected in Spain, Germany and Italy, and sailed for Africa, June 24, 1578, at the age of twenty-three years. The fleet comprised about 1000 vessels of different sizes, and had on board 9000 Portuguese, 3000 Germans, 700 Englishmen, and 2300 Spaniards. They landed safely at Alzira, and Muley Mohammed came directly with 300 Moors, to offer his son as a hostage. In the mean time, the sheriff of Morocco had collected a force of 100,000 men, and marched to the shore. He again, however, attempted to negotiate a peace, but without success. August 3, the two armies approached. "As the Portuguese is resolved upon his ruin," said Muley Moloch, "let him perish." Sebastian summoned a council of war. Some advised an attack, and others a retreat. The hostile forces were separated by a river. Sebastian's camp was distressed by want of provisions, and the enemy had taken possession of all the heights. Muley Mohammed was himself in favour of a retreat to the coast; for there the fleet was ready to receive the soldiers in case of defeat, and the sickness of his uncle Moloch made him sure of the throne in the event of his death, without unsheathing a single sword. But the king would not be persuaded. He was even unwilling to defer the attack till the afternoon, when the early approach of darkness would greatly diminish the danger of his soldiers, in case of defeat. He rode round and encouraged his men, after they were drawn up in battle array, August 4. But his adversary was not, in the mean while, inactive. The Moorish troops advanced in a large semicircle, having, in the van, the thousands who had been driven by fanaticism out of the south of Spain, and on the wings 10,000 horsemen. Weak as he was, Muley Moloch left his litter, and mounted on horseback. The engagement soon became general. Sebastian was foremost in the contest, and broke through the first and second lines of the enemy. Muley Moloch was obliged to retire from the battle. He died in his litter, but his death was concealed from his troops. The ardour of the young king soon bore him into the midst of the enemy, who were already pouring on the rear of his troops. He had the alternative to die or yield. The friends who surrounded him remained faithful to him to the last extremity. Muley Mohammed was drowned in his flight. Thus fortune baffled the hopes of all three leaders. All the Portuguese troops were killed or taken. There were different reports about the fate of Sebastian. Some said he perished in the thickest of the fight, others that he was taken, but soon killed, because the Moors quarrelled about the possession of him. On the morning after the battle, Moloch's brother was proclaimed sheriff, and immediately ordered a search to be made on the field for the body of Sebastian. A valet of the Portuguese king found a corpse, which he supposed to be that of his master; but it was so disfigured with wounds that it was impossible to identify it. The consequence was, that his death remained doubtful; and after Portugal had come into the hands of Philip, four adventurers appeared successively, pretending to be Sebastian. One was the son of a stone-cutter, and another the son of a brick-maker. One of these ended his life on the scaffold, and the other in the galleys. The last of the four played a most conspicuous part. He appeared, twenty years after Sebastian's defeat at Venice, where he described particularly the mode in which he concealed himself on the battle-field among the dead and wounded, and declared that he remained in Barbary, lest he should disturb the tranquillity of Portugal. After this, he lived as a hermit in Sicily, and at length resolved to make himself known to the pope. He had been plundered by robbers, and by chance recognised by some Portuguese, and carried to Venice. This was his story. He was banished by the senate, returned, and was thrown into prison. In the examination which he underwent, he appeared so innocent and simple, that all Europe was moved with sympathy. The senate set him at liberty, but banished him from Venice. A Dominican friar, Joseph Taxera, in Paris, moved every court in Europe to take an interest in his case. In the mean time, he was apprehended again in Florence, and sent to Naples, where he was treated as a galley-slave, but persisted in his story. Finally, according to some reports, he was sent to Castile, where he died. Sebastian's enterprise destroyed the flower of the Portuguese nobility, and the treasury was exhausted in the equipment of his fleet. There were no immediate heirs to the throne, and three separate houses claimed it —Parma, Braganza, Spain. The last, under Philip II., succeeded by its superior strength. The conquest of Portugal was the last military exploit of the aged Alba.

SEBASTIAN, San; a town of Spain, at the mouth of the Gurumea; twenty-two miles south-west of Bayonne; lon. 1° 58′ W.; lat. 43° 20′ N.: population, 12,000. It is seated at the foot of a mountain. The harbour lies within two redoubts, between which only one ship can pass at a time. Near its entrance is a fort, with a garrison. The town is surrounded with walls; besides which it is defended by bastions and half-moons; and on the mountain under which it lies is a citadel. The streets are broad, straight, and clean, the houses neat, and the churches fine. A considerable trade is carried on in this place, particularly in iron, steel and wool. San Sebastian has become celebrated for two sieges which it sustained in 1813 and 1823. After the battle of Vittoria, Wellington despatched general Graham to occupy the town, then defended by Ney. He besieged and bombarded it from the beginning of July, and on the 25th attempted to carry it by storm, but was repulsed with the loss of 2000 men, and compelled by a sally of the garrison to raise the siege. The siege was renewed after the defeat of Soult at the foot of the Pyrenees (July 30), and was continued to August 31, during which the British suffered heavy losses in repeated assaults. On that day they became masters of the most important works, at the expense of 3000 men; and the French still remained in possession of the citadel, which did not surrender till September 9. In the campaign of 1823, the French succeeded only after several assaults in getting possession of it by capitulation. They occupied it until 1828.

SECANT. In trigonometry, the secant denotes a right line drawn from the centre of a circle, which, cutting the circumference, proceeds till it meets with a tangent to the same circle. In the higher geometry, it signifies the straight line which cuts a curve in two or more points.

SECESSION; a large body of presbyterians, chiefly in Scotland, whose founders, in 1733, withdrew from the established church of that country, on account of the toleration of certain alleged errors in doctrine—the evils of patronage, and general laxity in discipline. But, as the first seceders appealed to and contended for that establishment of religion, which obtained from 1638 to 1656, it will be proper, for the purpose of exhibiting more clearly the grounds of secession, to glance at the ecclesiastical affairs of Scotland from the former of these periods to 1733, when the secession took place. Charles I., soon after the death of his father, instigated and assisted by archbishop Laud, used every endeavour to introduce into Scotland the episcopal form of church government and worship. But the violent measures which he and his court had recourse to, for this purpose, led to their own defeat; for the majority of the nation were highly indignant at the tyrannical imposition of the book of canons and the liturgy, and after a bold and patient struggle obtained permission to hold a free parliament and general assembly,—the latter of which met 1638. This assembly had much to undo; the six previous meetings of assembly which had assisted James I. in his attempts to substitute the canons and liturgy of the English church for the more plain and simple forms of presbytery, were condemned, and all their acts declared to be "null and void." The office of bishops, the high commission courts, and the civil offices of churchmen, were denounced as unlawful. They then proceeded to censure the chief actors in, what they termed, "the late apostacy." All the bishops were summoned to appear at their bar; and they, in despite of the authority of the king's commissioner, excommunicated nine of them, and passed sentence of suspension and deposition against others. This assembly also restored the presbyterian form of government—prohibited the intrusion of ministers on reclaiming congregations—and enacted a number of rules for the maintenance of order and purity in the church. So determined were they to rectify all abuses, and provide for the future well-being of the church, that they continued to sit in assembly after the king's commissioner had formally dissolved it, affirming that they had both divine and civil authority to hold assemblies when it appeared necessary —that "the sole and only power within this kirk stands in her sessions, presbyteries, synods, and general assemblies." Charles denounced this assembly as an unlawful and seditious meeting, after his commissioner had in due form dissolved it. However, the principal acts then passed, with trifling modifications, were ratified by parliament in 1640. Three years after this "The Solemn League and Covenant" was framed, for the purpose of uniting in one common bond the friends of reformation— that thereby they might the better secure their privileges and promote uniformity in religion. This bond was approved by the general assembly and the convention of estates in Scotland, by both houses of parliament, and by the famed assembly of divines at Westminster, and sworn and subscribed to by persons of all ranks. During nearly eleven years of this reforming period, patronage retained its legal force, but its evils were little felt, great care being taken that no minister should be obtruded upon the people contrary to their desire. And in 1649, it was abolished as an oppressive grievance, and injurious to the interests of the church. But this comparatively prosperous state of things was not of long continuance; men of little or no principle were admitted to places of power, and, obsequious to the will of a profligate prince, abolished presbytery, restored prelacy, and declared the king to be supreme in all ecclesiastical causes. The consequence was, that discord and dissatisfaction pervaded both church and state. Charles, (himself a covenanter) declared the covenants unlawful and not binding on the swearers, and obliged many of his subjects to renounce them. This was a peculiarly trying time for those presbyterians who could not go all lengths with the king and his court, in their foolish attempts to establish episcopacy in Scotland, whose inhabitants have all along manifested an unconquerable aversion to the forms of worship used by their brethren in the south. Those who refused to justify the measures of the court, were subjected either to fine, imprisonment, banishment, or death, and that frequently in its most cruel and revolting forms.

But the revolution in 1688 turned the day in favour of the persecuted presbyterians. The first parliament abolished prelacy, and the king's authority in ecclesiastical affairs—did away with the hated oaths and declarations imposed by Charles, substituting in their room a simple oath of allegiance and fidelity to king William—ratified the Westminster Confession of Faith—restored the presbyterian form of church government, "as agreeable to the word of God, and conducive to the advancement of true piety and godliness," &c. and placed the power of electing ministers in the hands of heritors and elders, with the consent of the people. The first parliament in the reign of queen Anne ratified the true protestant religion, together with the presbyterian form of government; and declared the unalterable continuance of them "an essential and fundamental condition of the union, in all time coming." But defection soon began to mark the state of things. In 1712, the law of patronage was revived in all its rigour. Mr John Simson, professor of divinity in the university of Glasgow, taught that the heathen, if they use the means of happiness which they possess, will be saved through the redemption of Christ—that all infants are formed as pure and holy as Adam was—that no proper covenant of works was made with Adam as the representative of his posterity—that our own happiness ought to be our chief end in serving God—and that there will be no sinning in hell after the last judgment. These doctrines, all of which the standards of the church condemn as unscriptural, the assembly, after various meetings and much altercation, found to be no more than "opinions not necessary to be taught in divinity—not evidently founded in scripture, and some of them tending to attribute too much to the power of corrupt nature." In order to counteract these and other prevalent errors, the "Marrow of Modern Divinity" was republished, with a recommendatory preface by Mr James Hog. The assembly, 1720, condemned a great many passages in that excellent book, and charged ministers to warn their people against reading it. Against this decision twelve members of court remonstrated, but without effect. Next year the assembly again took up the affair—confirmed the deed of the preceding assembly, and rebuked the remonstrants. Another cause of complaint was the manner in which the assembly passed over the conduct of Mr Campbell, professor of church history in the university of St Andrews, who in some of his published works taught doctrines contrary to the confession of faith. Patronage was now felt to be almost intolerable—presentees were violently forced upon reclaiming congregations, and in 1730, the assembly ceased to record protests relative to these unconstitutional proceedings. Against these and other growing defections, more than forty ministers and 1600 people petitioned the assembly, but their petitions were not heard. From this state of things the secession originated.

Mr Ebenezer Erskine, minister at Stirling, in a sermon preached at the opening of the synod of Perth and Stirling, October, 1732, from Psalm cxviii. 22. "The stone which the builders refused is become the head stone of the corner," boldly condemned several acts of the assembly, and especially the rigorous enforcement of the law of patronage. This greatly displeased a considerable number of the members of synod, who procured the appointment of a committee to collect, what they termed, "the unbecoming and offensive expressions in his sermon," and report next day to the synod. Having heard the report of the committee, and Mr Erskine in reply to the charges contained in it, the synod "found," by a small majority, after three days' warm discussion, "that Mr Erskine was censurable, on account of several indecent expressions used by him in that sermon, tending to disquiet the peace of the church, &c., and appointed him to be rebuked at their bar, and admonished to behave orderly for the future." From this decision twelve ministers and two elders dissented. Mr Erskine, believing that in his sermon he had taught nothing but the truth, refused to submit; protested, and appealed to the next assembly. To his protest Messrs William Wilson, Alexander Moncrieff, and James Fisher, ministers, adhered. The assembly refused to hear the reasons of protest, but took up the case as it stood between Mr Erskine and the synod; and after hearing parties, "found the expressions vented by him, and contained in the minutes of synod, and his answers thereto, to be offensive, and to tend to disturb the peace and good order of the church; and therefore approved of the proceedings of the synod; and appointed him to be rebuked and admonished by the moderator at their bar, in order to terminate the process." Mr Erskine, still convinced that he had uttered nothing but what as a faithful minister he was bound to do, and that the evident tendency of this decision was to prevent every testimony in future against any measure, however unscriptural, which the majority in the supreme court might pass into a law, declared that he could not submit to the censure; and gave in a paper containing his solemn protestation against that deed, and his claim "to the liberty of preaching the same truths of God, and of testifying against the same or like defections of this church upon all proper occasions." To this claim and protestation, the three ministers before mentioned adhered, and, along with Mr Erskine, withdrew from the court. The assembly cited them to appear next day. They obeyed, and a committee was appointed to retire with them, and persuade them to recall their protest. The committee having reported that they still adhered to their protest, the assembly appointed them to appear before their commission in August next; and should they not comply, and testify their sorrow for their conduct, the commission was empowered to proceed against them by suspension or higher censure. In August the commission suspended these four ministers (they still adhering to their protest), from the exercise of their office, and cited them to appear again in November. At this meeting, the commission, finding them still impenitent, "deposed them from the office of the holy ministry." This decision was obtained only by the casting vote of the moderator. It appears that these four ministers had much sympathy from many of their brethren, not only in the commission, as the state of vote proved, but throughout the church generally. Communications from seven synods (the church of Scotland consists of fifteen), were received by the commission, requesting to delay proceeding to a higher censure, and to exercise all lenity and forbearance toward the four brethren. But these were fruitless; the four brethren were thrust out from a church whose principles they loved, and felt constrained to declare a secession, not from the constitution of the church of Scotland, but from the prevailing party in her judicatures; and indeed it is evident from their private correspondence, as well as from their public conduct, that, at this time, they did not contemplate a final separation from their brethren of the establishment. They appear to have cherished the hope that the assembly would see the propriety of rescinding some of her former acts, and grant that liberty which they required. These men have sometimes been represented as obstinate schismatics, wishing to divide the church for things of trifling or minor importance. But on a careful examination of the whole proceedings, it appears, even by the confession of eminent members of the church of Scotland, that they were actuated by an enlightened and honest zeal; and that they looked on a secession as a painful measure, to which they were compelled. They would willingly have remained in the bosom of the church, if liberty had only been granted them to testify against her corruptions; but this was denied: they were violently expelled. In these circumstances, they deemed it their duty, the better to exhibit truth and testify against error, to constitute themselves into a regular church court: this they did, after fasting and prayer, designating themselves, "The Associate Presbytery." Of course those who had befriended them in the church courts, began to show a difference of opinion on this part of their conduct. Soon after, they framed a "Testimony to the Doctrine, Worship, and Discipline of the Church of Scotland." In this testimony the seceding brethren declared their zealous adherence to their ordination vows, and to the standards of their mother church; and likewise their intention to maintain church fellowship with all her ministers and members who faithfully opposed her defections, as opportunity offered.

In the next assembly, 1734, a very different spirit was manifested; numbers lamented the undue severity which had been exercised toward the four brethren, and were anxious that they should be restored to their former standing in the church. Several of the more obnoxious acts were rescinded, and the synod of Perth authorized to unite the four brethren to the communion of the church, and restore them to their respective charges. The seceding ministers were no doubt glad to see a disposition in the assembly to return to the good old way; but while they thought it did not give a more decided and formal condemnation of those errors in doctrine which several of its members, as they insisted, held and promulgated, and also several acts of assembly, which had been in force several years previous to the assembly of 1734, they could not accept the boon offered by the synod. The assembly evidently was anxious to have the seceders restored, and felt no small disappointment at their refusal. Both parties, indeed, seemed desirous of an amicable settlement of their differences. As a proof of this, at least on the one side, the seceders, for nearly two years and a half, held their meetings of presbytery for almost no other purpose than prayer and conference, wishing and waiting for an untainted return. But they thought they observed the assembly manifesting much carelessness with regard to matters both of doctrine and discipline. They now began to supply with sermon such of the christian people as petitioned for it; and appointed one of their number, Mr Wilson of Perth, to educate such students as might present themselves for the office of the ministry in connection with them.

In December, 1736, they published a second Testimony to the Doctrine, Discipline and Worship of the Church of Scotland. In it they marked out and condemned what they considered the leading defections of both church and state from 1650, and exposed the errors of Professors Simson and Campbell, showing that they were opposed to the word of God and the standards of the church. Mr Ralph Erskine, minister of Dunfermline, and Mr Thomas Mair, minister of Orwell, acceded to the associate presbytery in February, 1737. In September following, Mr Thomas Nairne, minister of Abbotshall, and in June next year Mr James Thomson of Burntisland, also acceded.

The plain and bold statements in the Second Testimony, and the multitudes who were leaving the church and placing themselves under the pastoral care of the seceding ministers, roused the indignation of the leading men in the assembly. The consequence was, the eight brethren were libelled and cited to appear before the assembly, 1739. The assembly intimated their willingness to drop the libel, forget all that was past, and receive them into full communion. To this the brethren would not agree, but gave in a paper called The Declinature, in which they denied the assembly's authority over them or any of their members, and declared that "the present judicatories of this national church are not lawful nor right constituted courts of Christ." For such conduct the assembly now found them worthy of the highest censure, but, delaying to inflict any censure at that meeting, earnestly recommended the next assembly to proceed against them, "unless they returned to their duty and submission." In conformity with this recommendation, the assembly, in 1740, deposed them from the office of the ministry, and appointed that intimation of this sentence should be given to the civil authorities in the different places of their residence, that they might be expelled from their churches. But neither the summary measures of the assembly, nor the reproach which the seceders incurred, prevented the rapid increase of their numbers. In little more than five years after the enactment of their Declaration and Testimony, the associate presbytery consisted of twenty ministers. In order to counteract the Arminian opinions which prevailed in the national church, the presbytery, in 1742, published "An Act concerning the Doctrine of Grace," in which that doctrine, "as revealed in the Holy Scriptures and, agreeably thereto, set forth in our confessions of faith and catechisms, is asserted and vindicated," &c. The secession now rapidly increased—meeting-houses were built in almost every corner of the country, in which the gospel was preached by such of her ministers as the Christian people chose to call. Owing to the number of ministers in the associate presbytery, it was found necessary to divide it into three presbyteries, to meet in one synod, under the name of the associate synod. This synod held its first meeting at Stirling, March 1745, when among other business it was called to consider the lawfulness of certain oaths, especially that termed the burgess oath, necessary to be sworn previous to holding office, or becoming a freeman in some burghs. There was much warm discussion in the synod, with regard to this oath; the first clause of which, by many, was deemed exceedingly objectionable, viz. "Here I protest, before God and your lordships, that I profess and allow with my heart, the true religion presently professed within this realm, and authorized by the laws thereof; I shall abide thereat and defend the same to my life's end, renouncing the Roman religion, called Papistry." Those who held that this oath, as taken by seceders, was proper, or that it was indifferent, were called burghers: and those who held the swearing of it to be sinful were called antiburghers. The former argued, that the clause objected to contained nothing more than what, in their acts and testimonies, they had already acknowledged and virtually engaged to perform—they had not seceded from the standards or principles of the establishment, but from the prevailing party in her judicatories, which pursued a course contrary to the principles of the church,—and that therefore the secession itself was just a fulfilling the requirements of the oath. The latter (the antiburghers) argued, that the swearing of the disputed clause imported a solemn renunciation and dropping of the whole of their testimony, because that this oath, being administered by magistrates belonging to the established church, ought to be understood in the sense of the magistrate for whose security it is given, and that the "true religion" mentioned in it, was to be understood as reduplicating upon every act of parliament or assembly, however inconsistent with the law of God—as including all the corruptions both of church and state. For the sake of preserving peace, the burghers offered to condescend on an act discharging seceders to swear this clause of the oath,—"as *inexpedient* in present circumstances, there being so much contention with regard to its import." This proposition the antiburghers rejected, and would be satisfied with nothing less than an act declaring the present swearing of the oath sinful for seceders, and inconsistent with their testimony and covenant-bond. After discussing the question at two different meetings of synod, it was proposed and carried, "that the present swearing of the religious clause in the burgess oath should not be a term of ministerial and Christian communion with them, at least till the affair should be maturely considered in presbyteries and sessions, and their opinion returned, and further means of unanimity, by prayer and conference, essayed." Against this decision Mr Thomas Mair protested, and those of his party met next day in a synodical capacity. When both parties had finally mustered their forces, it was found that, notwithstanding the majority of acting members by which the deed had been enacted, nineteen ministers adhered to the antiburgher views, and twelve to those of the burghers. Nor can we help lamenting that the grounds on which the question was argued were so limited. Both parties might well have condemned an oath, which excluded men from civil privileges, not merely because of doctrines held by them, and which might be considered dangerous, but also because of what they might refuse to profess—an oath which, in the present day, would be held as inconsistent with the rights of man and the settled liberties of every British subject.

Thus the associate synod was unhappily rent asunder, to the no small injury of the secession cause, and the interests of religion; for the keen party feelings engendered by the discussions in the synod, soon spread through the churches, and caused much heart-burning and unchristian conduct. However both parties, though it must be admitted that they sometimes did not "provoke one another to love and to good works," continued to maintain the same fundamental principles—and to dispense the ordinances of religion, exercising the presbyterian form of government and discipline in their ecclesiastical assemblies. Considerable exertion was made by them to supply the necessities of their brethren in Ireland, the United States, and British America. Not a few ministers were sent to these parts, at the expense of seceders in Scotland.

The fever of party, which for many years ran very high, began gradually to subside—time smoothed down their mutual asperities; and the chief ground of difference (the burgess oath) being removed, multitudes on both sides began to see that they acted the inconsistent and unchristian part of walking asunder, while in reality they were agreed. Petitions poured in from sessions and congregations to their respective synods, praying that something might be done toward a reunion. A committee, consisting of members of both synods, was appointed to frame a scheme of coalescence. This committee met, drew out, and laid before the synods a series of articles, as a basis of union. After mature consideration, the synods adopted them, with few amendments; and agreed that at their next meeting they would unite into one court. Soon after, both synods met in their separate capacity for the last time; and having finished their own business, each met with the other on the 8th September, 1820, on the very spot where, more than seventy years before, they had disagreed, contended and separated. The basis of union was read, the members standing, in token of their assent to the solemn deed of confederation, who then gave to each other the right hand of fellowship, expressive of union and brotherly love. The scene is said, by those who witnessed it, to have been interesting and affecting in the highest degree. They now took the title of "The United Associate Synod of the Secession Church"—adopted a "Formula of Ordination," and a "Summary of Principles," to be understood also "as a Directory for the admission of members." Since this union, the secession church has continued gradually to increase in the north of England and in Scotland. At present it consists of between three and four hundred ministers, twenty presbyteries, and one synod, which meets twice in the year. The synod employs a number of preachers in home missions to the more destitute corners of the land: and has lately engaged, with great spirit, in foreign missions.

Besides the united church, there are other two small but respectable bodies of seceders. One of these is commonly known by the name of original or old-light burghers, who separated from their brethren about the beginning of this century, chiefly concerning the magistrate's power in religious matters. These at present contemplate a reunion with the national church. The other, commonly called original seceders or old-light anti-burghers, consists of two small parties now united. One of these left the general body about thirty years ago, also because of discontent at the way in which the above question was settled by the synod to which they belonged; the other, because of the union between the burghers and anti-burghers. These, in their united state, hold sentiments favourable to civil establishments of religion, but are not prepared to join with the church of Scotland in its present state.

There are also many seceders in Ireland and North America, who are for the most part in declared friendship and communion with the united secession church in Scotland.

SECHELLES. See *Herault*.

SECKENDORF, Veit Louis von, a German divine and historian, was born in 1626, at Aurach, in Franconia, and received his education with the children of Ernest the Pious, duke of Saxe-Gotha, to whom he became librarian, privy-counsellor, minister, and consistorial director. In 1664, he entered into the service of the duke of Saxe-Zeitz, and, at length, into that of the elector of Brandenburg, who made him counsellor of state in 1691, and also chancellor of the university of Halle. His death took place in 1692. He was the author of a defence of Luther (in answer to Maimbourg's History of Lutheranism), which appeared in 1688 and 1692, under the title of *Commentarius historicus et apologeticus de Lutheranismo* (2 vols., folio), and a political work, entitled *Deutscher Fürstenstaat* (Hanover, 1656, 4to.)

SECKER, Thomas, archbishop of Canterbury, was born of dissenting parents, in 1693. Being designed by his friends for the ministry in their connexion, he early directed his attention to theological pursuits; but from scruples of conscience declined the appointment of a pastor, and went to Paris in 1719, with a view of practising in medicine, to the study of which he had devoted the three preceding years. While in this metropolis, he formed an intimacy with Talbot, son of the bishop of Durham, which eventually ripened into the sincerest friendship. By the persuasion of the latter, who promised him his father's interest in promoting his advancement, Secker became avowedly a member of the church of England. In 1722, he was ordained by bishop Talbot; and, in 1733, he received the living of St James's, Westminster, having, in the preceding year, been appointed a king's chaplain, on which occasion he graduated as LL. D. Two years after, he was elevated to the see of Bristol, whence he was translated, in 1737, to that of Oxford, with which he held the valuable deanery of St Paul's. In 1758, the duke of Newcastle, then at the head of the cabinet, placed bishop Secker in the primacy. As a scholar, he was elegant rather than profound, although in some of his writings, especially in his Lectures on the Catechism of the Church of England, he displays much depth of argument as well as perspicuity of style. His works, consisting of charges and sermons, have been collected and printed in twelve octavo volumes (1795), with a life by bishop Porteus, his chaplain. There was also published by him, in his life-time, a reply to Mayhew on the Charter and Conduct of the Society for propagating the Gospel, without the author's name. This controversy relates to a proposed establishment of bishops in the American colonies. Archbishop Secker died at Lambeth palace, in 1768.

SECOND. See *Duel.*

SECONDARY FORMATION. See *Geology.*

SECOND SIGHT (in Gaelic, *Taisch*); a Highland superstition, which supposes certain persons endowed with the power of seeing future or distant events as if actually present. See *Highlands.*

SECRETARY (from *secretus*, secret); an officer, who, by order of his superior, writes letters and other instruments. Secretaries of state in monarchical governments, are officers of the king, whose duty it is to attend to the despatch of grants, orders, &c. This term was first used in France, where the three clerks of the privy council (*clercs du secret*) received the title of *secrétaires des finances* in 1343, and in 1547, that of *secrétaires d'etat.* Louis XVIII. (1814) styled his ministers, *ministres secrétaires d'etat.* In England, the term *secretary* was first applied to those clerks of the king, who, being always near his person, were called "clerks of the secret;" and in the reign of Henry VII. the expression "secretary of state" first came into use. Elizabeth first admitted them to the rank of privy counsellors. There was formerly a secretary of state for North Britain, and at one time also for the American department. At present there are three *principal secretaries of state*, viz. one for the home department, one for foreign affairs, and one for the colonies, each of which has two under secretaries. The secretaries of state have the custody of the signet, and the direction of the signet-office. (See *Ministers.*) The secretary at war belongs to the war-office. In the United States, the four heads of departments are styled *secretaries.* The department of state, created by act of congress (September 15, 1789), embraces foreign and home affairs. The secretary of state conducts treaties with foreign powers, and corresponds with the public ministers abroad, and foreign ministers to the United States He keeps the seal of the United States, but cannot affix it to any commission till signed by the president, nor to any act or instrument without authority from the president. The treasury department was created by act of congress of September 2, 1789. The secretary of the treasury superintends the fiscal concerns of the government. For the settlement of the public accounts, the department is divided into the office of the secretary (who has the superintendence of the whole), the offices of the two controllers, of the five auditors, of the treasurer, and of the register; to each of which is attached the necessary number of clerks. The patent office is under the control of the secretary of state, and the general land-office, in which all patents for land are made out and recorded (established April 25, 1812,) is subordinate to the treasury department. The war department (created August 7, 1789) at first embraced the land and sea service; but the latter now forms a distinct department. The secretary of war superintends every branch of military affairs, and has under his direction a requisition bureau, a bounty-land-office, a bureau of Indian affairs, a pension bureau, an engineer office, an ordinance office, an office for the commissary-general of subsistence, a paymaster-general's office, and a surgeon-general's office. The office of secretary of the navy was created April 30, 1798; a board of three navy commissioners is attached to the office. A *secretary of embassy* or *legation* is an officer appointed by the sovereign, and attached to an embassy, for writing of despatches, &c. He is to all intents a public minister, and as such has the same immunities as the head of the embassy himself. See *Diplomacy*, and *Ministers, Foreign.*

SECRETION. Many of the component parts of the animal system become, in the course of its operations, changed, and unfit for further use. For the preservation of the system, it is not less necessary that these parts should be removed, than that the constant consumption should be supplied; and in this double process the whole organic system is continually changing its ingredients, although it retains the same external form. This supply of new matter is derived from the blood, and the process itself is called *secretion.* Most animals secrete both solids and fluids. The solids are deposited by the capillary vessels at the places of their destination, and supply the continual wear of the system. The liquids are not intended to preserve the form directly, but serve to assimilate the food by promoting digestion (as, for instance, the saliva, gastric juice, and bile.) In these secreted fluids are contained all the component parts of the blood, slightly changed, together with an alkali. Distinguished from these are the secretions, which are produced in a similar manner, and are designed to carry off from the system useless matter.

SECTS. The term *sect* is generally applied to a party in religion or philosophy, which holds a particular body of doctrines. Thus, in ancient philosophy, there were the Ionic and Italic sects, the Epicurean, the Stoic, the Peripatetic sects. But the philosophical sects are often termed *schools*, and the word *sect* is, in its narrower sense, applied particularly to religious parties. Among the Jews, there were the sects of the Pharisees, Sadducees, and Essenes, and, of a more strictly religious character, those of the Caraites, Rabbinists, and Samaritans. The Mohammedans are divided into two great sects, the Sunnites and Shiites, besides numerous smaller sects, as the Ishmaelites, Wahabees, Nosairians, &c. (see the several articles, and also *Islam*, *Mohammed*, and *Koran*), who differ from each other not only in their interpretations of the Koran, but in their various views in regard to the genealogy of the prophet's family. The Hindoos are divided into the Sivaites, or those who worship Siva, and the Vishnooites, who pay particular reverence to Vishnoo. The Christian world has, from the first introduction of Christianity, been divided into an almost innumerable variety of sects. We have already given a hasty view of the earlier sects under the head of *Heretics*. The Cathari of the middle ages, who, under various names, opposed the pretensions of the papal see, and to whom the Albigenses and Waldenses mostly belonged, were, with the exception of the latter, extirpated by the inquisition and the inquisitorial tribunals of the church. (See *Cathari*, and *Paulicians*.) In the thirteenth century arose a new species of sects and schismatic fraternities, whose object was the introduction of a new spirit of sanctity among the monastic orders. (See *Fraternities*.) A party grew up among the Franciscans, which was denounced by the popes, and by their own less rigid brethren, and which insisted upon absolute poverty. They were called, in contempt, *fratricelli*, and *spiritual friars*. (See *Franciscans*.) They did not meddle with points of faith, but attacked the existing priestly government, and announced its fall. They wandered about, occupied in praying and asking alms, the excommunication which hung over them preventing them from founding monasteries. Many of the lower classes of both sexes, in France, Germany, and the Netherlands, attached themselves, as a third order, to the Fratricelli, and from these Tertiarians sprang the fraternities of Beghards, Beguines, and Lollards, whose purity of manners and benevolent institutions, for the care of the sick and the instruction of youth, rendered them more respected than their predecessors, whom they resembled in their frequent prayers, the asking alms, and their secret religious exercises. The Apostolics, an order which arose in 1260, at Parma, but did not obtain the papal confirmation, continued to subsist in Italy, Switzerland, and France, till the fourteenth century. The Brethren and Sisters of the Free Spirit, remnants of whom are discoverable during the Hussite disturbances in Moravia and Bohemia, under the names of Picards and Adamites, aimed at restoring the state of innocence, by appearing naked in their assemblies, without regard to sex or age. Other fraternities, not acknowledged by the church, were distinguished, in the fourteenth century, for their voluntary penances and gross superstitions: such were the Flagellants and the Brothers of the Cross. The Wickliffites in England, and the Hussites in Bohemia (see *Huss*), resembled the Waldenses in their zeal for conformity with the Scriptures, and their opposition to the abuses of the papacy. These, with the Hussite sects, the Calixtins, or Utraquists, the Horebites, the Taborites, and the Bohemian Brethren, preceded the reformation of the sixteenth century. The Protestant churches which that event created, were, with the Greek church, considered as sects by the Catholics; but by Protestant writers the word *sect* is commonly applied only to the smaller parties, disconnected with the Calvinistic and Lutheran churches. The Jansenists, Quietists, and Molinists, notwithstanding the deviations on some doctrinal points, were still orthodox Catholics; the Jansenists even have distinct congregations and clergy in the Netherlands, but yet are by no means considered as forming a separate sect, since they acknowledge the supremacy of the pope, and observe all the Catholic usages, only disputing the pope's infallibility. The Appellants, Convulsionists, and Secourists, Naturalists, and Figurists, Discernants and Melangists, who were produced by the Jansenist controversy, merely had a short existence in France, in the beginning of the eighteenth century. (See *Jansenius*, and *Quietism*.) In the Greek church, although it has, in later times, been little addicted to religious speculations, there are some sects. These the tolerant government of Russia treats with indulgence. (See *Greek Church*.) In the fourteenth century, the Strigolnicks seceded, from aversion to the clergy, but soon became extinct. In 1666, arose the sect of the Roskolnicians, from whom proceeded the Philippones. The Anabaptists, Socinians, and Schwenkfeldians, though not Protestants in the strict sense of the word, agree with them in the rejection of the papacy. Besides the great division of the Protestants into Calvinists and Lutherans (see *Reformation*, and *Reformed Church*), the former have been much divided. Thus the different views of Calvin and Zuinglius, in regard to church government, formed a ground of distinction which (notwithstanding the *consensus Tigurinus* of 1549) separated the Zuinglians, or older Swiss reformers, and their adherents in Hungary, from the Calvinists of Geneva, France, Holland, Germany, and England, and the controversy concerning predestination, at the synod of Dort (1618), produced the permanent separation of the Remonstrants or Arminians, from the strict Calvinists. The Reformed in France, under the name of Huguenots (q. v.), acquired a political importance in the sixteenth and seventeenth centuries, and the persecutions to which they were subjected produced its usual effects of religious extravagance and fanaticism. (See *Camisards*.) The English church is Calvinistic, but many of the clergy are Arminian. (See *England, Church of*.) Presbyterianism, which in England forms a dissenting sect, is the established religion of Scotland. (See *Presbyterians*.) From the bosom of the English church have proceeded the Puritans, Independents, Methodists, Quakers, Baptists, with other less considerable sects. (See these articles, and also *Nonconformists*.) Unitarians and Universalists, who differ from the established church more widely than the sects above mentioned, on doctrinal points, are also pretty numerous in England. Seceders (see *Secession*), Cameronians, &c., are among the more noted of the Scotch sects. The Herrnhutters (see *United Brethren*), and Swedenborgians, or members of the New Jerusalem church (see *Swedenborg*), have proceeded from the Lutheran church. In the United States, where perfect religious freedom prevails, and where emigrants from all countries seek refuge, it is not strange that there should be representatives of almost all the modern sects of the Christian world, and also some sects of native origin. (See *Christians*, *Shakers*, *Tunkers*.) Besides the various sects which have formed independent religious communities, there were also, during the course of the seventeenth and eighteenth centuries, numerous theological parties and religious enthusiasts, who were united only by the bonds of common opinions, but did not form distinct ecclesiastical societies. Such were the Labadists, whose founder (1666) was Labadie, an ex-Jesuit and preacher at Middelburg, and who received the doctrines of the Reformed church, but endeavoured to form a family similar to the primitive Christian societies, by acts of penance, monastic discipline, and community of goods; the Bœhmists, or followers of Böhme, also called Gichtelians, from the theosophist Gichtel, who proposed to restore the priesthood of Melchizedek, and Angelic Brethren, from their efforts to attain angelic purity of life (see *Bœhme*); the Philadelphists, or Angelic Brethren of England, a short-lived theosophical party, collected by Jane Leade, on Bœhmistic principles, towards the close of the seventeenth century; the Dippelians, so called from their founder, Dippel, a physician, who agreed with the Gichtelians in their reverence for the writings of Böhme, but occupied themselves much with alchemy; the Pietists (see *Pietism*), and the Chiliasts or Millennarians, under their various forms. (See *Millennium.*)—See, further, the articles *Abrahamites*, *Theophilanthropists*, and *Theosophists;* and the work of Grégoire, *Histoire des Sectes Religieuses* (2 vols., 1814).

SECULAR CLERGY; in those countries in which there are monastic orders, the clergy who do not live shut up in monasteries, and subject to monastic rules. They are so called in contradistinction to the monks, or *regular clergy*, who have taken the vows, and are bound by the rules of their order.

SECULAR GAMES (*ludi sæculares*); solemn games, celebrated by the Romans about once a century (*sæculum)*, in honour of Apollo and Diana. They lasted three days and three nights; and the secular ode (*carmen sæculare*), composed by Horace on one of these occasions, is yet extant.

SECULARIZATION is the act of rendering secular the property of the clergy. The first great secularization in Germany took place in 1648, on the occasion of the peace of Westphalia. The second took place after the peace of Luneville, in 1801. In England, the first great secularization was made under Henry VIII.

SECUNDUS, Johannes. See *Johannes Secundus.*

SEDGE (*carex*); an extensive genus of grass-like plants, mostly inhabiting the northern and temperate parts of the globe. They are easily distinguished from the grasses by having the stem destitute of joints. The flowers are monœcious or more rarely diœcious, and are disposed in one or several dense, scaly spikes. The seeds are triangular, and are enveloped in a sort of capsule, composed of a ventricose scale, which enlarges after flowering, and often renders the spikes of these plants conspicuous. The roots are perennial and fibrous, the leaves hard and rough on the edge. The sedges in general are but of little utility to man. They furnish coarse fodder, containing little nutriment, especially after the flowering season is over, or when dried, and which is rejected by most of the domestic quadrupeds. The roots and leaves decompose with difficulty, and in the course of time, contribute largely to turn the soil of marshes into peat. More than 300 species are known. They are found in all soils, but the greater proportion are marsh plants. The *C. acuta* form in marshes the little elevations called *tussocks*. It grows in dense tufts, and the fibrous roots interlace very closely, so as to retain a portion of the soil, which in places subject to occasional inundation, is liable to be washed from around them. At the same time, the mass increases above by successive generation. The *C. Fraseri* is the handsomest of the genus, resembling, at a short distance, when in flower, one of the *liliaceæ*. It was discovered in the southern part of the Alleghanies, but has not been seen in a wild state by any later botanists.

SEDLEY, Sir Charles, a celebrated wit, of the age of Charles II., was the son of Sir John Sedley of Aylesford, in Kent, where he was born in 1639. At the age of seventeen he was entered at Oxford, but quitted the university without a degree, and retired to his estates till after the restoration, (1660). His credit with the king was heightened by his never asking favours, although the debauchery into which he plunged soon dissipated his pecuniary resources. A fine of £500 was imposed upon him by chief-justice Hyde, for an indecent riot committed at a public house, where he harangued the mob, naked, from the balcony, in company with lord Buckhurst and Sir Thomas Ogle. Being returned member of parliament for the borough of New Romney, in Kent, in 1661, he sat for that place in four successive parliaments. James II. carried on an intrigue with his daughter, afterwards created by that monarch countess of Dorchester. Sir Charles was so little pleased by this elevation, that it is said to have been the principal cause of his subsequently taking a strenuous part in bringing about the revolution; and to a gentleman who taxed him with a want of loyalty, he replied that, "as the king had made his daughter a countess, the least he could do was to assist in making his majesty's daughter a queen." Sir Charles died about the commencement of last century. He was the author of six dramatic pieces, printed with his miscellaneous poems, in 1719, in two octavo volumes. The latter consist of pastorals, prologues, songs, epilogues, and occasional pieces, which, though not free from the licentiousness of the age, are clear of much of its grossness.

SEDLITZ, or SEIDLITZ WATER; a mineral water obtained from the village of Sedlitz, in Bohemia. The waters are saline and purgative, limpid, sparkling, and of a bitter and salt taste. They contain sulphates of magnesia (Epsom salt), soda (Glauber's salt), lime, and carbonates of lime and magnesia.

SEEBECK, a distinguished German natural philosopher, born in 1770, at Reval, studied medicine in Berlin and Göttingen, is known by the discovery of thermomagnetism. He also partook in the discovery of the *metalloides*, discovered the *entoptic* phenomena, for which he received a prize from the French institute, and enlarged in other ways the field of optics. Since 1818, he lived in Berlin, where he was elected a member of the academy of sciences, and died in December, 1831.

SEED; that part of organic bodies which serves to continue the species. The seeds of plants present the greatest variety of form and appearance. In shape, they are conical, round, oval, oblong, flat, kidney-shaped, &c., with smooth and shining surfaces, or rough and provided with all sorts of appendages. They consist of an external covering, a shell or membrane, within which are the kernel and the germ. The external envelope is designed merely for the protection of the kernel, and generally consists of several membranes. When hard and woody, it is called a *nut* or *stone*, and, in this case, the kernel is enveloped in an inner, soft, and thin covering. The kernel consists of farinaceous and mucilaginous matter of more or less hardness, and possesses the property of absorbing moisture from the earth, by means of which it is softened, swells, and affords the first nourishment to the germ. Seeds are formed of one, two, or several lobes. At the point by which the kernel was attached to the capsule or seed vessel, a scar or mark is visible, beneath which lies the germ, which contains the future plant. Besides the wonderful provision which nature has made for the dispersion of seeds, some being wafted through the air by the light downy appendages attached to them, and others being fitted, by their form and envelope, for being carried down rivers, their vitality or dormancy is also wonderful. Seed may be kept out of the ground, for a century, and still retain the power of germinating when committed to the soil. So also where seeds have been found deeply buried in the earth, or in soils not adapted for their germination, in positions in which they have lain quiescent for years they have been known, on exposure to the air, or removal to a different soil, to exercise a vegetative power. See *Botany*

SEED LAC. See *Coccus*, end of the article.

SEELAND. See *Zealand.*

SEETZEN, ULRIC JASPER, a German traveller, a native of East Friesland, was educated at Göttingen, where he particularly studied philosophy and natural history, under professor Blumenbach. Having published some tracts on natural history, statistics, and political economy, he was appointed aulic councillor to the czar in the principality of the Jever. He was desirous of visiting Africa and the East; and being encouraged by the dukes Ernest and Augustus of Saxe-Gotha, he set off, in August, 1802, for Constantinople. He proceeded to Syria, and remained a considerable time at Aleppo, making excursions into the neighbouring territories. In 1806, he explored the course of the river Jordan and the Dead sea, travelled through Palestine, and went to Hebron and mount Sinai. His enthusiastic desire of knowledge prompted him to profess Mohammedanism, that he might undertake a pilgrimage to Mecca and Medina, which he visited in 1809 and 1810. In the month of November, 1810, he was at Mocha, whence he wrote the last letters which arrived from him in Europe. Having had his property seized by the Arabs, under the pretext of his being a magician, he proceeded towards Sana, in December, 1811, to complain to the iman of that place; and a few days after his departure, he died suddenly at Täes, probably from the effects of poison given him by order of the iman. No complete account of the researches of this unfortunate traveller ever appeared; but his letters, which he addressed to baron von Zach, were inserted in the Geographical and Astronomical Correspondence, published at Gotha; and a translation was printed in the French *Annales des Voyages* (1808—14). Extracts from his letters to Blumenbach, and others also, were published in the *Magasin Encyclopédique*.

SEGARS. See *Tobacco.*

SEGUIDILLA; a Spanish form of versification, consisting of four lines, generally assonant lines, of seven and five syllables alternately. It usually has a close of three verses, called *estribillo*, of which the first and last lines rhyme.

SEGUR; an ancient French family, which has produced several distinguished men, including the following:

Joseph Alexander, born at Paris in 1752, died in 1805, was the author of several comedies and operas, which still remain popular, of the *Correspondance secrète entre Ninon de l'Enclos, le Marquis de Villarceaux et Mad. de Maintenon*, and a romance *Sur les Femmes* (3 vols., translated into English).

His brother *Louis Philip*, born in 1753, died in 1830, peer of France, and member of the French academy, served in America under Rochambeau, and, after the peace of 1783, was ambassador to St Petersburg. In 1790, he was sent to Berlin; but, after the deposition of the king, he retired from public affairs, and in 1798 published his *Theâtre de l'Hermitage*—a collection of plays which he had composed for the private theatre of the empress of Russia. In 1800, appeared his masterly *Histoire du Règne de Frédéric Guillaume II.*, or *Décade historique.* In 1803, he was chosen a member of the Institute, and Napoleon appointed him one of the council of state. After the restoration, he was received into the chamber of peers. In 1824, appeared his *Œuvres Complètes* (30 vols., 2d ed., 36 vols., 1828), and, in 1825, his *Memoires, Souvenirs et Anecdotes* (3 vols.)

His son *Paul Philip*, born 1780, served with distinction on various occasions, and executed several diplomatic missions. In 1812, he was created *marechal de camp*, and distinguished himself in several bloody actions in 1813 and 1814. In December, 1831, he was made peer for life, being one of the thirty created for the purpose of giving ministers a majority on the question of a hereditary peerage. His *Histoire de Napoléon et de la Grande Armée pendant l'Année* 1812, has passed through numerous editions, and given rise to several controversies, particularly one with Gourgaud, which resulted in a duel between the parties.

SEIDELMANN, JAMES, professor in the academy of fine arts in Dresden, was born in 1750. He perfected himself in painting, under Mengs, at Rome, and subsequently invented an entirely new manner of drawing in *sepia*, chiefly for the representation of the antique. His pieces, executed in this manner, and his copies in oil, are numerous, and have gained him much reputation. In his style of drawing in *sepia*, he and his wife are still unrivalled, though they have had many imitators. His wife was born in Venice, and perfected herself in miniature painting under Theresa Maron, sister to Raphael Mengs. She made the drawing of the Madonna del Sisto, from which Müller prepared his admirable engraving.

SEIDLITZ WATER. See *Sedlitz.*

SEIGNIORIES, in Lower Canada; a remnant of the feudal system which prevailed in France at the time of the settlement of Canada, and many of the details of which were transferred to the Transatlantic colony. All the lands of the colony were granted under the old feudal tenure, but many modifications were successively introduced, tending to abridge the rights of the seigneur, or lord, and extend those of the tenant. On the conquest of Canada by the British, the institutions of the colony were left unchanged; but about thirty years afterwards, the tenure of free and common soccage was introduced, and all the lands not previously granted have since been considered as soccage lands. The seigneurs have no longer any jurisdiction, and the feudal services of the tenants are light. See Bouchette's *British Dominions in North America*, vol. i., chap. xiv.

SEIKS. See *Sikhs*.

SEINE, one of the four great rivers of France, rises in the mountains of Burgundy, flows northward, through Champagne, to Troyes, receives the Aube, and, turning to the west, is joined by the Yonne, a river from the south, and before reaching Paris, by the Marne, a larger stream flowing from the west. At Paris, the Seine varies from 300 to 500 feet in width; and it soon after receives an addition to its streams, by the influx of the Oise, when, pursuing a winding course to the north-west, it passes Rouen, and discharges itself into the sea at Havre de Grace; length of its course, 400 miles. It becomes navigable at Troyes, and large vessels can go up to Rouen.

SEINE; a department in the north of France, which is, in fact, nothing more than the capital. Its district forms a tract nearly square, of which the breadth is about sixteen miles. See *Department*.

SEINE, LOWER; a department in the north of France, comprising the north-east part of Normandy. See *Department*.

SEINE AND MARNE; a department in the north-east of France, occupying the western part of Champagne. See *Department*.

SEINE AND OISE; a department of the north-east of France, adjacent to that of the Oise, and to that of the Seine and Marne. See *Department*.

SEISIN, in law, signifies *possession*.

SEJANUS, the favourite of Tiberius, was the son of a Roman knight. Although he knew how to dissemble his ambition and pride before his master, yet he spared no means of gratifying his passion. He acquired the confidence of the suspicious Tiberius, so as to govern him completely; and the servile senate paid the greatest respect to the powerful favourite. The pretorian cohorts were also favourable to him, and there was no obstacle in the way of his attaining the supreme power, but Drusus, son of Tiberius, and the sons of Germanicus, the nearest of kin to the emperor. Drusus was put out of the way by poison; the latter, with their mother, were banished and thrown into prison—a step which they did not long survive. Several distinguished Romans, friends of Germanicus, were beheaded at the instigation of Sejanus; and when Tiberius finally retired from Rome, and withdrew from the government, Sejanus governed with absolute power, and the senate ordered that the statues erected in his honour should be publicly worshipped. But at the moment of his highest elevation, the suspicions of Tiberius were awakened, and his measures were taken so cautiously, that Sejanus suspected nothing, until he was openly accused by the emperor before the senate (A. D. 31). He was then imprisoned, condemned to death, and executed on the same day.

SELAM. See *Flowers, Language of.*

SELBY; a town in the west riding of the county of York, situated on the great road from London to Edinburgh, and west bank of the Ouse, 181 miles north by west from London. The town is well built, paved, and lighted, and has a handsome Gothic market-cross. It has latterly been greatly improved by the erection of a new street, called the Crescent. It contains manufactories for sail-cloth, and leather, an iron-foundery, and a ship-yard, for the building of small vessels, which can now clear out for any part of the kingdom, as a branch custom-house has lately been erected here; by means of the canal from the Ouse, to the Air and Calder navigation, a communication has been opened with Leeds, and Selby has thus become the unloading-post for the west riding. Many of the poorer people are employed in flax-spinning. Population in 1831, 4600; in 1841, 5376.

SELDEN, JOHN, a distinguished English scholar, was born in 1584, at Sabington, in Sussex, and received his education at Oxford. After a residence of three or four years, he repaired to Clifford's Inn, London, and about two years after removed to the Inner Temple, and, on being called to the bar, acted principally as a chamber counsel. The first object of his studies was the history and antiquities of his own county; and, in 1607, he drew up a work entitled *Analectum Anglo-Britannicum*, a treatise on the civil government of Britain before the coming of the Normans. It was succeeded, in 1610, by England's Epinomes, and *Jani Anglorum Facies altera*, a treatise on the progress of English law. In 1614, appeared his largest English work, Titles of Honour, a standard authority in regard to all that concerns the degrees of nobility and gentry in England. This was followed, in 1617, by his *De Diis Syriis*, an inquiry into the Syrian idolatry. In 1618, he entered the field of politics by his History of Tythes, the object of which was to deny their divine right. This publication highly offended James I., and the author was brought before the high-commission court, on which, without retracting his opinions, he declared his sorrow for publishing the work. In 1621, James I., in his speech to parliament, having asserted that their privileges were grants from the crown, Selden spoke so freely in opposition to this doctrine, and was so instrumental in drawing up their protestation, that on their dissolution he was committed to custody. He was discharged at the expiration of six weeks, on petition. In the following year, he was elected member of parliament for Lancaster, and was again a member in the two first parliaments of Charles I., in the second of which he was appointed to support the impeachment of the duke of Buckingham, and otherwise became a leading opposer of the arbitrary measures of the court. In 1629, he drew up his learned treatise entitled *Marmora Arundelliana*. (See *Arundelian Marbles.*) On the dissolution of the parliament, Selden was one of the eight members of the commons who were imprisoned in the tower on a charge of sedition, and who refused to give security for their good behaviour. This confinement lasted two or three years; but, at length, he was admitted to bail, and finally released in the beginning of 1634. During this period, he wrote some of his treatises on Jewish antiquities, and, in 1635, published his treatise entitled *Mare Clausum*, in answer to the *Mare Liberum* of Grotius; in opposition to which he endeavours to establish the British right of dominion over the circumjacent seas. Some of the following years of his life were occupied in Hebrew studies, the result of which appeared in a work entitled *De Jure Naturali et Gentium juxta Disciplinam Ebræorum*—a valuable but not very well digested repertory of all the matter afforded by history or tradition, in relation to the subject. In 1640, memorable for the meeting of the long parliament, Selden was unanimously elected member for the university of Oxford. His name appears on several committees, appointed to inquire into abuses; but he neither concurred in the prosecution of lord Strafford, nor seemed desirous to abrogate the episcopal form of church government, although anxious to check the encroachments of ecclesiastical power. When the differences between king and parliament were manifestly tending to open hostilities, he opposed the attempts of both parties to gain possession of the sword, and, when he failed, withdrew, as much as he was able, from public business. He remained, however, with the parliament, and was one of the synod which met at Westminster for the establishment of church government. In 1643, he was appointed, by the house of commons, keeper of the records in the Tower, and, the year following, subscribed the solemn league and covenant. In 1645, he was elected one of the twelve commissioners of the admiralty; and, in 1646, the parliament voted him £5000, as a reward for services. He continued to sit in parliament after the execution of the king, and employed all his influence for the protection of learning. He refused to gratify Cromwell by writing an answer to the Eikon Basilike. He died in 1654. In private life, he was universally esteemed for his goodness of heart and urbanity of manners; and, as a scholar, he must be deemed one of the most learned men of his day. His style is often laboured and uncouth, although his speeches and conversation were peculiarly luminous and clear. Some opinion of the latter may be collected from his Table Talk, published, after his death, by his amanuensis. His library and museum were added to the Bodleian library. His whole works were collected in three folio volumes (usually bound in six), by doctor David Wilkins (1726), with a life of the author. See also Aikin's *Life of Selden.*

SELENIUM; a new elementary body, detected by Berzelius, in the sulphur of a sulphuric acid manufactory, at Fahlun, in Sweden. The sulphur was derived from iron pyrites, found at the copper mine of Fahlun. After the combustion of the sulphur in the acid manufactory, there remained at the bottom of the leaden chamber, a red or brownish matter, which, when heated before the blowpipe, emitted a very strong odour, resembling that of horse-radish. The name applied to this substance comes from σεληνη, the moon, indicating its relation to *tellurium.* The purification of the selenium, as found above, is a tedious process; it being mingled with no fewer than eight foreign substances. When pure, however, it exhibits the following properties: Exposed to a heat higher than that of boiling water, it melts, and on cooling becomes solid: in this state, it has the metallic lustre, a deep brown colour, and a conchoidal fracture. The powder of selenium is a deep red. In very thin slivers, it is transparent, with a ruby-red colour. It crystallizes with difficulty in cubes or four-sided prisms, terminated by pyramids, specific gravity, 4·3. It is easily scratched by the knife; is brittle, and readily reduced to powder. When heated in a retort, it begins to boil at a temperature below that of a red heat, and assumes the form of a dark-yellow vapour, not so intense as the vapour of sulphur: the vapour condenses in the neck of the retort in black drops, which unite into larger drops, as in the distillation of mercury. Selenium is a very bad conductor of heat, and a non-conductor of electricity. It combines with three portions of oxygen, forming three separate compounds; viz. *oxide of selenium*, *selenious acid*, and *selenic acid.* The first of these is formed whenever selenium is strongly heated in the open air, and is distinguished by the smell above alluded to. It is not absorbed by water, nor is it capable of uniting with acids. *Selenious acid* may be formed by burning selenium in oxygen gas, or by heating it in contact with nitric acid, or nitro-muriatic acid. When the solution cools, the selenious acid is deposited in large prismatic crystals, longitudinally striated, and similar to those of nitrate of potash. Its vapour resembles, in colour, chlorine gas. Its taste is acid, and it leaves a slightly burning sensation upon the tongue. It is very soluble in water and in alcohol. Selenious acid consists of selenium 100 and oxygen 40·43. *Selenic acid* is formed by detonating an intimate mixture of one part of selenium and three of nitre, in small quantities at a time, in a red-hot crucible. The residue, which contains seleniate of potash, is to be dissolved in water, and nitrate of lead added to the neutralized solution till all the selenic acid is thrown down in the state of seleniate of lead. This powder is carefully washed, diffused in water, and a current of sulphureted hydrogen gas passed through it till the whole lead is converted into sulphuret. The liquid being now filtered and heated to expel the sulphureted hydrogen gas, the result is an aqueous solution of selenic acid. It may be concentrated by evaporation till its temperature reaches 536°; but if the heat is raised higher, oxygen gas is given out, and the acid changed to the selenious. Its specific gravity is 2·6. It resembles sulphuric acid in its consistence, and in the heat evolved when it is mixed with water. It contains about 16 per cent. of water. The acid is composed of selenium 100 and oxygen 60·66. Thus it appears, that the selenious and selenic acids resemble sulphurous and sulphuric acid in their constitution. Chlorine and selenium appear to combine in two different proportions, and to form a *chloride* and a *bichloride;* the former of which is liquid, and the latter solid. No experiments have been made to determine the nature of the combinations of selenium with iodine and fluorine. Selenium combines with hydrogen, and forms a gaseous substance, which has been distinguished by the name of *selenieted hydrogen gas.* When selenium and potassium are fused together, a compound is formed, which dissolves in water: the liquid has the colour of beer. When muriatic acid is added, a considerable proportion of the selenium is precipitated, and the liquid acquires the smell of sulphureted hydrogen. When muriatic acid is poured upon this concentrated fluid in a retort, the seleniet of potassium becomes red, an effervescence takes place, and selenieted hydrogen gas is driven off. The gas is colourless, and is possessed of an odour like sulphureted hydrogen; but it speedily acts with great energy upon the organs of smell and the throat, occasioning a painful feeling, destroying the sense of smell, and producing a severe cough. It is more soluble in water than sulphureted hydrogen: the solution precipitating all the metals from their solutions. It reddens vegetable blues, and has other acid characters. When selenium is dropped into melted *phosphorus*, it dissolves rapidly, and the compound sinks through the liquid phosphorus in red streaks. When phosphorus is saturated with selenium, we obtain a very fusible compound, of a dark brown colour, a good deal of lustre, and a vitreous fracture. A *sulphuret of selenium* may also be formed: it has a deep orange colour; softens at 212°, and becomes liquid at a temperature a few degrees higher. Nothing is known respecting the combinations of selenium with nitrogen, carbon, boron, and silicon. Selenium is still a very scarce substance. The analogy between it and sulphur is very remarkable. We have recently found selenium in several interesting metallic combinations in the Oriental Hartz:—1. *Seleniuret of lead* is the most frequent of these. It consists of 27·7 selenium and 72·3 lead. 2. *Seleniuret of lead and cobalt.* Its constituents are

Lead.	63·92
Cobalt.	3·14
Selenium,	31·42
Iron,	0·45
Loss	1·07
	100·00

3. *Seleniuret af lead and copper.* Of this mineral there are two varieties, composed as follows:—

Selenium,	29·96	34·26
Iron, with traces of lead,	0·44	2·08
Lead,	59·67	47·43
Iron,	0·33	
Copper,	7·86	15·45
Silver,		1·29

4. *Seleniuret of lead and mercury* contains

Selenium,	24·97
Lead,	55·84
Mercury,	16·94
Loss,	2·25
	100·00

SELEUCIA; the name of several cities in Asia, founded by Seleucus Nicator. One of the most celebrated was that which was made the capital of Babylonia, in place of Babylon, situated about thirty miles distant from the latter city. The Tigris and Euphrates flowed near its walls, and rendered it one of the richest commercial cities of ancient times. The number of its inhabitants is estimated to have been about 600,000, chiefly Greeks. It was destroyed in the time of the Roman emperor Verus.

SELEUCIDÆ. See *Seleucus.*

SELEUCIDES, ERA OF THE. See *Epoch.*

SELEUCUS NICATOR, OR NICANOR; son of Antiochus, one of the most distinguished generals of Alexander the Great, who invested him with the government of Babylonia and Media. After the death of Alexander, Seleucus assumed the title of king of Syria, and reduced to his sway all the countries from the Hellespont to India and the Jaxartes. His descendants were called, from him, the *Seleucidæ*, and the era of the Seleucidæ dates from his reign. (See *Epoch.*) After several successful wars against Antigonus, Demetrius, and Lysimachus, he was murdered in the seventy-eighth year of his age (B. C. 280), by one of his courtiers, Ptolemæus Ceraunus. Seleucus was eminent for his courage, prudence, and humanity. He encouraged letters, and restored to Greece the books and monuments of art that had been carried off by Xerxes. The Athenians, from gratitude, erected a statue in honour of him at the entrance of the portico of the academy. This prince founded thirty-four cities in Asia, which he peopled with Greek colonies. He was the father and benefactor of his subjects.

SELIM III. See *Ottoman Empire*, and *Mahmood II.*

SELJOOKS, OR SELJUKS; a Turkish dynasty, whose empire extended over Asia Minor and Syria, and whose power declined in the period of the crusades. The name was derived from *Seljuk*, a Turkman, who had been in the service of the chagan of the Chazars, and had been obliged to flee from the camp of his master. He became the leader of a horde composed of various tribes; and his grandson Togrul Beg or Bey conquered Bagdad, 1060, was made sultan by the caliph, and left the dignity of Emir el Omrah to his descendants, who held it till 1152. The most celebrated of his successors, Malek Shah, surnamed Gelaleddin, died in 1092. In 1104, the empire was divided among several dynasties, of which that of Iconium (1074—1308) survived the longest. It was succeeded by that of the Ottomans. See *Ottoman Empire;* also the work of Wilken and Raumer *CCI Emendationes in Lohmeieri et Gebhardii Tabulæ genealogicæ Dynastiarum Arabicarum et Turcicarum* (Heidelberg, 1811).

SELKIRK, ALEXANDER. See *Robinson Crusoe.*

SELKIRK; a small royal burgh of Scotland, the capital of Selkirkshire, is situated on the banks of the Ettrick, at the distance of thirty-six miles south from Edinburgh. It is a place of considerable antiquity, and long continued to be a part of the demesnes of the crown. The inhabitants of Selkirk distinguished themselves by their bravery at the battle of Flodden field. Of one hundred townsmen who followed James IV. to the field, only a few returned, but they brought back some trophies of their valour, including a standard yet in the possession of the corporation of weavers. Selkirk has long been noted for the manufacture of shoes. The town, within the last twenty or thirty years, has been greatly improved, the streets having been levelled and paved, some buildings removed from the middle of the street, and many new houses erected, together with a town-house, comprising apartments for the courts, for the use of the corporation, and also a library. At the outskirt of the town a new prison has been built, surrounded by a high wall, including an area in which the prisoners may take exercise. Population of burgh and parish in 1831, 2833; in 1841, 3484.

SELKIRKSHIRE; a county in the south of Scotland, anciently called the sheriffwich of Ettrick or Ettrick Forest, from an extensive forest there, in which were numerous herds of red and fallow deer, kept by the Scottish princes, who had several hunting-seats in this part of the country. The woods have been nearly all cut down, and where the deer formerly roved, large flocks of sheep now find pasture. This is a mountainous district, but it is intersected by valleys, through which flow the Ettrick, the Yarrow, the Gala, and the Tweed, with many smaller streams, whose beauties have been repeatedly celebrated in pastoral song. Selkirkshire is twenty-seven miles long from south-west to north-east, and sixteen miles broad, exclusive of a small detached part on the east. It comprises a superficies of 263 square miles, or

168,320 statute acres. With the exception of a very narrow portion, on its eastern side, the county may be said to be a continued alternation of hill and dale, and many of the eminences rise to a considerable height. It has some small lakes, the chief being St Mary's Loch and the Loch of the Lowes, lying at the head of Yarrow. Of minerals, none of the more useful have yet been found in this pastoral county; coal, lime, and sandstone being equally wanting. It has, however, abundance of whinstone, and a good deal of granite. From the hilly nature of the county it is chiefly pastoral. The mountain ranges of Ettrick and Yarrow afford most extensive and excellent sheep walks. In no district in Scotland are so much skill and care directed to sheep raising. The sheep are chiefly of the white-faced breed. This county contains many pleasant seats of the nobility and gentry, chiefly belonging to the families of Ker, Scot, and Pringle. The arrangement of the parochial districts is extremely irregular, the parishes are very large, and only two of them are entirely comprehended within the bounds of the county. The only towns here are the royal burgh of Selkirk and Galashiels. Population of Selkirkshire in 1821, 6637; in 1831, 6833; in 1841, 7990.

SELTZER or **SELTER'S WATER**; a mineral water belonging to the class of acidulous waters, which is found in the village of Niederselters, near Limburg, in Nassau. It is drunk unmixed at meals, or with wine and sugar. The water is exported in great quantities, in stone bottles containing about three pints. More than one million are filled annually. On the spot, 100 bottles, pitched, &c., are sold for eleven guild. Rhenish. It is composed, according to Bergmann, of carbonic acid, 60 cubic inches; muriate of soda, 109·5 grains; carbonate of magnesia, 29; ditto of lime, 17; ditto of soda, 24; in about five pints of water. See *Mineral Waters.*

SEMEIOTICS, also **SEMEIOLOGY** (*doctrine of signs;* from the Greek σημειον), is used in medical science to denote that branch which teaches how to judge of all the symptoms in the human body, whether healthy or diseased.

SEMELE; a daughter of Cadmus, by Hermione, the daughter of Mars and Venus. She was beloved by Jupiter; but Juno, jealous of her husband's amours, determined to punish this successful rival. She persuaded Semele to entreat her lover to come to her arms with the same majesty as he approached Juno. This rash request was heard with horror by Jupiter; but, as he had sworn by the Styx to grant Semele whatever she required, he came to her bed attended by lightning and thunderbolts, and Semele was instantly consumed with fire. The child, however, with which she was pregnant, was saved from the flames by Jupiter, who placed him in his thigh the rest of the time which he ought to have been in his mother's womb. This child was called Bacchus, or Διόνυσος. Semele, after death, was honoured with immortality; or, according to some, remained in the infernal regions till Bacchus, her son, was permitted to bring her back.

SEMI-ARIANS. See *Arians.*

SEMIGALLIA. See *Courland.*

SEMI-METALS; a term that expresses those metallic substances not possessing ductility and malleability, these properties being deemed characteristic of real metals.

SEMINOLES. See *Creeks;* also *Indians, American.*

SEMI-PELAGIANS. See *Pelagians.*

SEMIRAMIS; a queen of Assyria, whose history is enveloped in fable. Ctesias is our only authority for the early Assyrian history. Semiramis, when grown up, married Menones, the governor of Nineveh, and accompanied him to the siege of Bactra, where, by her advice, she assisted the king's operations. These services, but chiefly her uncommon beauty, endeared her to Ninus. The monarch asked her of her husband; but Menones refused to yield her, and, when Ninus had added threats to entreaties, hanged himself. Ninus resigned the crown to her, and commanded her to be proclaimed queen of Assyria. Semiramis rendered Babylon the most magnificent city in the world. She visited every part of her dominions, and left every where monuments of her greatness. She was not less distinguished as a warrior, and conquered many of the neighbouring nations. Having been completely defeated on the Indus, she was either put to death or compelled to abdicate the throne, after a reign of forty-two years, by her son Ninyas. She has been accused of abandoned licentiousness. The whole history of Semiramis has the appearance of an Oriental tale; and there is nothing to indicate the date of her reign, although her existence has not been called in question.

SEMITIC LANGUAGES; one of the great families of languages. They have been divided thus: 1. Aramæan (in the north), including Eastern and Western Aramæan; the Eastern embraces (*a.*) the Assyrian, which is lost, excepting a few names of kings; (*b.*) the Babylonian, from which several dialects originated in Palestine, after the return of the Jews from the Babylonish captivity, as the Chaldaic, in which some portions of the Old Testament are written; the Syro-Chaldaic, used at and about Jerusalem; the Galilean, and the Samaritan. The Western Aramæan includes (*a.*) the Syriac dialect (the common written language of the Western Syrians, of which the Syriac translation of the Bible is the oldest, to this day the ecclesiastical language of all the sects in Syria, but used as a popular idiom only in a few districts; the purest is spoken in Mesopotamia; (*b.*) the Palmyrene (see *Palmyra*), preserved only in a few inscriptions; and (*c.*) the Sabian idiom, a corrupted Syrian dialect, in which the religious works of the Sabians (q. v.) are written. 2. Canaanitish languages, or those of the earliest inhabitants of the country between the Arabian desert and the Mediterranean. This comprises (*a.*) the Phœnician language (of which remains exist only on coins and inscriptions), with its dialect, the Punic; (*b.*) the Hebrew (see *Hebrew Language and Literature*), and the Rabbinic dialect (see *Rabbinical Language and Literature*), which grew up after the decline of Jewish science, in the middle ages, among the Spanish Jews, who chiefly sprung from the Jews of Jerusalem, whilst the Polish and German Jews were mostly Galileans. 3. The Arabic language (see *Arabian Literature*), from which originated the Ethiopian or Abyssinian (see *Abyssinia*), and, from the modern Arabic, the Maltese.

SEMLER, John Solomon, one of the most influential German theologians of the eighteenth century, was born at Saalfield, in 1725. His father was a clergyman, and his education was good. The duke of Saalfield and his whole court were *Pietists;* and morbid and gloomy views of religion pervaded all classes, from which Semler was at first preserved by the influence of his mother; but, after her death, he yielded to the influence of his father and brother, became desponding, and wept and prayed the whole day. He went to the university of Halle in 1742, where he became acquainted with some young men who had brighter views of life, and his gloom wore off. He became a pupil of the liberal professor Baumgarten, partook in his literary labours, and in the dissertation which he wrote on taking the degree of master of arts, defended the genuineness of some passages in the New Testament, which had been attacked by the English writer Whiston, and went, in 1750, to Coburg, where he edited the Coburg Gazette. A diplomatic paper gained him the favour of the duke, and he was appointed professor of history and poetry at Altdorf; but after the lapse of a year, he was made professor of theology at Halle, where he and professor Baumgarten were opposed to all the rest of the theological faculty. His lectures on ecclesiastical history, hermeneutics and dogmatics, were fully attended, and, in 1757, he was made head of the theological seminary, after the death of Baumgarten, whose life he published in 1758. His works are full of learning, but exhibit little elegance. He died in 1791, after having endured many severe trials, owing partly to his particular views of religion, and his hatred of all restrictions on conscience. Semler, though sometimes imprudent from want of tact, was a man of strict virtue, a most tender conscience, and a pious heart. Griesbach was his pupil. The value of Semler's labours towards illustrating the history of the sacred text, and contributing to a right understanding of the New Testament by a reference to the condition and opinions of its authors, and the fearlessness with which he proceeded in his historical method of exegetics, and thus showed the human origin of many theological dogmas (in his notes to Wetstein's Prolegomena and critical works; his Introduction to Theological Hermeneutics, and his apparatuses for a liberal interpretation of the Canon), will be long remembered, and acknowledged even by those who are opposed to many of his views.

SEMLIN; a Sclavonic military community, and fortified frontier city (see *Military Districts*), not far from the junction of the Save with the Danube, only a quarter of a league distant from the Turkish city of Belgrade, which lies opposite to it, on the Danube. Semlin contains seven churches and chapels, one convent, 1200 houses, with 8000 inhabitants, not including the soldiers. It carries on an important commerce with Turkey. There is a daily fair on the Belgrade meadow, where, however, the Turkish merchants are separated from the Hungarian by barriers, to prevent the transmission of the plague.

SENASSY. See *Fakir*.

SENATE. This term has been applied to bodies of very different powers and constitutions in different countries. The Roman senate (*senatus*), in the early periods of the city (see *Patricians*), participated in the judicial and executive powers of the king, and even in the management of military affairs, by means of its influence with the people. Historians commonly attribute its creation to the wisdom of Romulus; but it may be asserted, without exception, that, among all the civilized nations around the Mediterranean, a senate, or select body of elder citizens, was considered no less essential and indispensable than a popular assembly. Such a council, says Aristotle, there always is, whether the constitution be aristocratical or democratical. It is also generally said that the number was increased, under Tarquinius Priscus, to 300. However this may be, it is plain that it corresponded to the tribes, the 300 houses (*gentes*), which originally composed the three tribes, being represented in the senate, each by its *decurio*, or head. At a later period, the choice (*lectio*) of the senators was connected with the censorship. Every lustre (i. e. every five years), the censor read aloud the names of the senators, the worthiest first; and the one first named was called *princeps senatus*. Those who were unworthy of the dignity were degraded by the omission of their names. The equestrian order was the nursery from which the senate was supplied. In the time of the republic, a senator was required to have property of the value of about £4,000; in the time of Augustus, of £6,000. The supreme officers of government assembled the senate, which acted on propositions laid before it by them, article by article, and decided by a majority of voices. A decree of the senate was called a *senatus consultum*. If a tribune opposed the decree, or the senate was not full, the act was called *senatus auctoritas*, and was submitted to the people. The tribunes of the people could reject every proposition before the senate by their veto. All matters of public administration—the choice of public officers, legislation, and questions of peace and war—were within the jurisdiction of the senate, which likewise superintended the financial concerns of the republic. The authority of the senate was styled *auctoritas;* that of the people, *potestas:* the former decreed (*decernebat*), the latter ordered (*jubebat*). Still, in those cases in which it was subject to the decisions of the people (*plebis-scita*), the authority of the senate was extensive; and in other matters its acts (*senatus consulta*) had the force of laws. Under the emperors, the senate gradually lost its political consideration; but until the time of Constantine the Great, many imperial decrees, which the senate issued by the command of the emperors, were called *senatus consulta*, and took the place of the laws enacted by the people (*leges*). It finally became so submissive, that it often decided on the propositions of the emperors, without deliberation, by acclamation.

The French senate came into existence after the revolution of the 18th Brumaire, which placed Bonaparte at the head of the government, when he caused a new (the fourth) constitution to be drawn up (Dec. 13, 1799), which, besides three consuls, the tribunate, and the legislative body, established a conservative senate (*sénat conservateur*), consisting of eighty members, of at least forty years old. The senate was to choose its own members for life, on the nomination of the first consul, the tribunate, and the legislative body; preserve the constitution, and, with this view, inspect the acts of the legislative body; choose the consuls, tribunes, and members of the legislature, from the lists presented by the departments; and supply vacancies by the choice of one of the three individuals nominated by the three other branches of government. Each senator had a yearly pension of 25,000 francs, afterwards increased (exclusive of the senatories) to 36,000. This body soon became a tool in the hands of the first consul, for the conversion of the republic into a monarchy. This took place when the senate sanctioned the decree proposed by the council of Bonaparte, for a new change in the constitution of France. The fundamental law, or *senatus-consulte*, of August 15, 1801, declared the dignity of consul to be for life, and rendered the senate dependent on the first consul, by giving him the power of choosing or nominating the greater part of them, and appointing them ministers, &c. The first consul was bound to give the senate information of all treaties, before making them public. Bonaparte, as president of the senate, now caused the senators to take the oath of allegiance to him. By the *senatus-consulte* of Jan. 4, 1803, a *senatorerie* was created in each district of the courts of appeal, endowed with a palace and a yearly income of from 20,000 to 25,000 francs, from the national domains: these (thirty-two in number) the first consul conferred on the members of the senate for life. At a later period, the senate was composed of the imperial princes, the dignitaries of the empire, and 136 members. Two committees were appointed, one for personal liberty and the other for the freedom of the press, which, however, made no opposition to the wishes of the emperor. It is well known that a *senatus-consulte* of the same body which had declared Napoleon emperor (May 18, 1804), declared the throne vacant (April 3, 1814). (See *Bonaparte.*) The new constitution granted by Louis XVIII. (see *Charte*) substituted a hereditary chamber of peers for the imperial senate. In 1831, the peerage was limited to the life of the incumbent. (See *Peer.*)

The Russian senate is a supreme council of state, constituted by Alexander I. in 1810, and consisting of thirty-two members, and four presidents, all named by the emperor. It has no power over the will of the emperor, but is merely a medium for transacting all affairs of the empire, except foreign affairs. It is divided into four departments; of legislation, justice, war, and finance.

The senate of the United States is composed of two senators for each member of the confederacy, chosen by the states for a term of six years. (See *Congress of the United States.*) The vice-president of the United States is the presiding officer. Besides its legislative capacity, it has, in some measure, the character of an executive council, its consent being necessary for the ratification of treaties, and for the appointment of ambassadors, other public ministers and consuls, judges of the supreme court of the United States, heads of departments, and some other officers. (See *President.*) The senate is also a high court of impeachment.—In most of the states, the legislatures are divided into two houses, one of which is called the senate (in New Jersey, the *legislative council;* in Vermont, there is but one house), and is, in most instances, chosen for a longer term of service, and sometimes for larger districts than the more popular branch (the assembly, house of representatives, house of commons.) In some states, it performs the functions of an executive council, and generally forms the high court of impeachment for the state. See *Constitutions.*

SENATUS CONSULT. See *Senate*, and *Civil Law.*

SENECA, Marcus Annæus, a rhetorician, native of Corduba, in Spain, went to Rome during the reign of Augustus, and there taught rhetoric with great success for several years. He was the author of some rhetorical works, the remaining fragments of which are often contained in editions of the works of Seneca the Philosopher, and have been published separately.—*Lucius Annæus*, his son, accompanied his father to Rome at an early age. He was born in the first year of the Christian era, and received from his father a careful education. Gifted by nature with excellent talents, and being fond of study, the young Seneca made rapid advances in knowledge. The Stoic philosophy had peculiar charms for his grave character, and he cultivated it with ardour. His reputation soon extended to the imperial court, and his various learning and practical wisdom caused him to be appointed tutor to the young Nero, and procured him several important places. His life, however, was by no means without reproach. He is accused of an excessive love of money, and of obsequiousness towards his unworthy pupil. Although he at first exerted a beneficial influence upon the government, he did not long retain it, and suffered himself to be prevailed upon by the prince to attempt a public apology for his murder of his mother. Calumniated by envious enemies, suspected by the jealous prince, whose rapacity was probably also tempted by the wealth of the philosopher, he was accused of being an accomplice in the conspiracy of Piso, and condemned to death. The only favour which the tyrant was willing to grant him, was the choice of the manner of his death. Seneca caused his veins to be opened; but, impatient at the slowness of this mode of death, he took poison, and was finally drowned in a warm bath. He died with the calmness of a Stoic philosopher, A. D. 66. We have several works under his name, partly prose and partly poetical. The former consist of letters and treatises on different subjects of philosophy; the latter of tragedies. The former are replete with just, profound and excellent remarks, conveyed in a form not entirely unworthy of them; yet they bear marks of the influence of the spirit of the age, —the inclination to the Stoic philosophy, and the style is too often artificial, antithetical, and swollen. His tragedies are much inferior to his letters and some of his philosophical works. It is by no means settled that the tragedies are actually by him; and the *Octavia* must necessarily be rejected as spurious, since the death of the heroine, which forms the subject of the piece, took place subsequently to his own. Some of them have been attributed to his father. They are formed on the Greek plan, but are far behind their models in every respect. They have so little of a dramatic character that they seem to have been composed merely to be read or declaimed. Although it is not to be denied that in these solitary remains of the tragic poetry of the Romans, there are some pleasing passages and powerful scenes, it must be allowed that they are wanting in unity of plan, truth, elevation of sentiment, dignity and strength of thought, and elegance and vigour of expression. The best editions of Seneca's philosophical works are the Elzevir (Amsterdam, 1672), Ruhkopf's (Leipsic, 1797—1811, 5 vols.), and Lemaire's, with the notes of Bouillet (Paris, 1827—28, 3 vols.) We have translations of his works by Lodge and L'Estrange, and of his Epistles by Morell. Of the ten tragedies which go under his name, the best editions are, the Gronovian (Amsterdam, 1682), that of Schröder (Delft, 1728), the Bipontine, and, more recently, that of Baden and Bothe.

SENECA; a beautiful lake of New York, about thirty-five miles long, and two and a half wide. It lies north and south, parallel to Cayuga lake, from which it is distant from six to fifteen miles. It discharges Seneca river from its north end, which runs east to the north end of Cayuga lake.

SENECA or **GENESEE OIL**. See *Bitumen.*

SENECA INDIANS; one of the Six Nations formerly inhabiting the state of New York. There are reservations still owned and occupied by them on Cataraugus creek and Buffalo creek, and a few reside in Ohio. Their numbers may equal 1500. See *Iroquois.*

SENECA ROOT. The *polygala senega* has a woody, branched, contorted root, about half an inch in diameter, and covered with ash-coloured bark. It is inodorous. The taste is at first sweetish and nauseous, but, after being chewed for a moment, becomes pungent and hot, producing a very peculiar tingling sensation in the fauces. Medically, it is considered stimulating, expectorant, and diuretic, and, in large doses, emetic and cathartic. It has been celebrated as a cure for the bite of the rattlesnake, and, on a basis equally destitute of foundation, has been cried up as a remedy in pulmonary complaints. In certain stages of these complaints, however, it is not entirely destitute of utility. The plant grows to the height of about a foot, producing several herbaceous stems from the same root. The leaves are alternate, entire, oval-lanceolate, smooth and sessile. The flowers are small, white, disposed in a slender, terminal raceme, and somewhat resemble in form the blossoms of a pea.

SENEGAL; a river of Africa, the largest that flows into the sea on the western coast. It rises in a mountainous country, about lon. 7° W., lat. 11° 50′ N., about eighty miles west of the source of the Niger, and not much farther distant from the sources of the Gambia. It flows into the Atlantic in lat. 16° 5′ N., having a bar at its mouth, which prevents ships of 500 tons from entering the river. The country through which the river flows, from the coast to about sixty miles above Gallam, is a level. Above Gallam, the country becomes mountainous and broken, intersected with numerous streams, the sands of which are impregnated with gold dust. Sixty miles above Gallam is the cataract of Flau, which forms the limit of European navigation; and about forty higher is that of Govinea. A great abundance of fish, with crocodiles and hippopotamuses, are found in the river.

The *government of Senegal* is the French settlement at the mouth of the Senegal, formed in the reign of Louis XIV. The principal article of commerce is gum, called *gum Senegal*, superior to the gum Arabic. The quantity purchased by the French, from 1785 to 1787, amounted to 800,000 pounds. Besides gum, there were exported from the Senegal, in 1786, 2200 slaves, valued at 2,440,000 livres; gold, valued at 90,000 livres; ivory, &c., 130,000 livres. St Louis is the capital of the settlement. The great gum fair is on a barren, desolate spot on the river, about thirty leagues above St Louis.

SENEGAMBIA; the name applied to an extensive region on the western coast of Africa, lying chiefly between the Senegal and Gambia, in which are included many kingdoms and states. Among the principal nations are the Foulahs, the Jaloffs or Yaloffs, and the Mandingoes. Upper Senegambia, to the north of the Senegal, is inhabited by Moors, who carry on an extensive trade in gum with Europeans.—Middle Senegambia, between the Senegal and the Gambia, is inhabited by the negro tribes above mentioned, who practise agriculture, and have some manufactures. The soil is fruitful, and produces grain of all sorts, fine fruits, cotton, indigo, tobacco, pepper, &c. Elephants, lions, rhinoceroses, hippopotamuses, antelopes, and various other wild animals, are found here.—Lower Senegambia, to the south of the Gambia, has a similar soil, climate, and productions.

SENESCHAL (*seneschallus*); originally a steward or major-domo, whose duty it was to superintend the affairs of his lord's household; whence the name, from *senne* (house), and *schalk* (servant). (See *Steward.*) In France, the *sénéchaussée* was the jurisdiction of a *sénéschal*, as, in the course of time, that officer came to be invested with judicial functions, and the leader of the nobility within a certain district. The royal seneschal was called *grand sénéschal*, in contradistinction to the seneschals of the feudal princes, the dukes of Normandy, Brittany, Guienne, Burgundy, &c.

SENN is the name given to the cowherds, in Switzerland, who drive the cattle high into the Alps, and remain with them during the whole summer. These herdsmen sell the milk on their own account, paying over a certain sum to the owners of the cows.—The herd is called *senne.*

SENNAAR; a negro kingdom in Africa, which is generally considered as a part of Nubia, lying between the Nile and the Tacazze, and comprising the isle of Meroe. To the north, it borders on Turkish Nubia; to the east, on mountains which separate it from the coast of the Red sea; to the south, on Abyssinia; and to the west, on Nigritia, or Soudan. It is separated from Darfour by Kordofan; lat. 14°—17° N., lon. 31°—39° E. The soil is, for the most part, level, in some parts barren, but, on the Nile and the Tacazze, fruitful and well cultivated. Among the animals are camels, sheep, cattle, swine, and the African wild animals. Rice, grain, melons, tobacco, sugar, senna leaves, ebony, and sandal wood, and palms, are among its productions. The climate is warm; in summer, insufferably hot. The rains which follow the hot weather, render the air unhealthy. The inhabitants are negroes, who bear the name of *Shillooks*, and conquered the country from the Arabs in 1504. They are rude, ignorant Mohammedans, governed by an absolute despotism. Besides the Shillooks, there are also nomadic Arabs, and Bedouins, who are tributary, and the Daheras, or heathen Nubians, who have been purchased, or carried off from the neighbouring countries. The Daheras form the main strength of the military establishment of Sennaar. 14,000 of them, armed with spears and shields, guard the capital, with 18,000 Shillooks on horseback. The manufactures of Sennaar are inconsiderable; but the commerce carried on, by caravans, to Suakem, Jedda, Mecca, Abyssinia, Nigritia, and Egypt, is extensive. The country has been little visited by Europeans, and is but imperfectly known. Cailliaud—*Voyage à Méroë, &c.* (1824) and English—Expedition to Dongola and Sennaar—are among the most recent travellers who have given accounts of it. The capital, Sennaar, on the Nile, has about 16,000 inhabitants. The houses are poorly built, with flat roofs. The royal palace is constructed of mud, and is surrounded with a high brick wall.

SENNE is a large heath in Westphalia, extending from Paderborn to Münster and Osnabrück. In that part of it which belongs to Lippe is the *sennestud*, where wild horses are made fit for service.

SENNEFELDER, Aloys, the inventor of lithography, born in 1771, was the son of a performer at the theatre royal of Munich, and was placed, for education, in the university of Ingoldstadt, as a student of jurisprudence; but, after his father's death (1791), he attempted a theatrical career. Not succeeding in this, he became an author, though his poverty prevented him from publishing his works. He tried many plans with copper-plates and compositions, as substitutes for letter-press, in order to be his own printer. He found, in the course of his experiments, that a composition of soap, wax and lamp-black, formed a good material for writing on his plates; that, when dry, it became firm and solid, and that it resisted aquafortis. Wanting facility in writing backwards on the plates, he got some pieces of Kilheim stone, as cheap materials on which he could practise after polishing their surfaces. One day, being desired, by his mother, to take an account of some linen about to be sent to be washed, and having no paper at hand, he wrote the account on a polished stone, with his composition ink, intending to copy it at his leisure. When he was afterwards about to efface this writing, it occurred to him that he might obtain impressions from it; and having eaten away the stone with acid for about the hundredth part of an inch, he found that he could charge the lines with printing ink, and take successive impressions. This new mode of printing appeared to him very important, and he persevered through all difficulties in applying his discovery to practical purposes, and in improving it. In the course of many experiments, he found that it was not necessary to have the letters raised above the surface of the stone, but that the chemical principles by which grease and water are kept from uniting, were alone sufficient for his purpose. This point obtained, lithography may be said to have been fully discovered. All that was required was the improvement of the materials, and the mode of working with them, and the construction of a proper press for taking the impressions. The perseverance with which he followed up his experiments, in order to overcome the difficulties which successively arose in his progress, was remarkable, and the more so, considering the want of method in his proceedings. Often did he waste months in surmounting a difficulty which a little knowledge, or a very little reasoning, would have enabled him to conquer immediately. The first essays to print for publication, were some pieces of music, executed in 1796; afterwards he attempted drawings and writings. The difficulty he had in writing backwards led him to the process of *transfer;* and the use of dry soap, which was found to leave permanent traces, which would give impressions, naturally led to the mode of chalk drawings. Having made considerable improvements, Mr Sennefelder obtained, in 1799, a patent privilege for Bavaria, when he made known his process, and afterwards entered into partnership with Mr André, of Offenbach, who proposed to establish presses, and take out patents in London, Paris and Vienna. For this purpose Sennefelder went to London with a brother of André's; and, the invention having been much spoken of, under the name of *polyautography*, most of the principal English artists made trials of it. Unfortunately, however, the art of printing from the stones was not then fully understood, and the difference between the materials of Germany and those of England, used both for the purposes of drawing and printing, caused constant failures; and the artists, in succession, abandoned the practice of it. In August, 1800, Sennefelder, who had separated from André, went to Vienna, where, after much difficulty, a patent was obtained, and extensive preparations were made for applying his process to print cottons; but bad management, and some unfortunate circumstances, prevented his success, and he returned to Munich in 1806, leaving the establishment in other hands. Mr Mitterer, professor of drawing at the public school of Munich, now (1806) practised lithography to multiply copies for the pupils, and is said to have invented the chalk composition in its present form, or, at least, to have improved it greatly. From this period, the practice of the art has extended and improved rapidly, and more particularly at Munich, where several establishments were formed, for the purpose of applying it to the fine arts, as well as for printing writings and official forms, for the different departments of the government. In October, 1809, Sennefelder was appointed inspector of the royal lithographic establishment at Munich, for printing, from stone, a complete map and survey of Bavaria; since which period he devoted his time to experiments, and to writing the history of his invention. (See *Lithography.*) In 1819, Sennefelder published his Elements of Lithography (in German). In 1826, he invented a new process for taking impressions on coloured sheets, so as to imitate oil-painting. This art he called *mosaic printing.* He died at Munich, 26th February, 1834.

SENSES. The internal organs of the five senses —seeing, hearing, feeling, smelling and tasting—are the nerves, small, thread-like fibres, distributed all over the body, and all connected with the brain. (See *Nerves.)* Few subjects, in comparative anatomy and physiology, have given rise to more various and contradictory opinions than the external organs of sense in some classes. Much misunderstanding on this point has arisen from the hasty application of inferences drawn from the human subject to other animals. Thus it has been supposed that those which possess a tongue must have it for the purpose of tasting, and that the sense of smell must be wanting where we are unable to trace the existence of a nose. But, in many instances, the tongue cannot, from its substance and mechanism, be considered as an organ of taste, and must be merely subservient to the ingestion and deglutition of food; while in many animals, particularly insects, an acute sense of smell seems to exist, although no part can be pointed out in the head which analogy would justify us in describing as the nose. The sense of touch appears to exist only in four classes of animals, —in most mammalia, in a few birds, in serpents, and probably in insects; and although all animals may possess that feeling which makes them sensible to the impressions of warmth and cold, very few possess, like the human subject, organs exclusively appropriated to the sense of touch, and expressly constructed for the purpose of feeling, examining and exploring the qualities of external objects. (See *Touch.*) The sense of taste, as we have above remarked, does not appear to be confined to the tongue, that member being wanting in many animals which do not seem destitute of the sense; and in many which possess it, the tongue is employed for other and different purposes. (See *Taste.*) The sense of smelling prevails much more extensively in the animal kingdom than that of taste, since it not only assists several genera in selecting their food, which they have not afterwards the power of tasting, but is also of service in finding out proper objects for the satisfaction of their sexual appetites. (See *Smell.*) We should naturally expect to find an organ of hearing in most classes of animals, when we consider the various services which this sense performs, as that of indicating the approach of danger, of conducting beasts of prey to their food, &c.; and even in those animals, in which no external organ of hearing is discoverable, the sense is evidently not wanting. (See *Ear*, and *Hearing*.) The power of vision is confined to those animals which are provided with eyes for the reception of the images of external objects. Some species, even of the higher orders, are destitute of the organ of vision, which is also entirely wanting in the lower classes of the animal creation. (See *Eye*, and *Optics*.) It is by the senses that the mysterious communication between the spiritual soul and the external world of being is kept up. The manner in which this is done, is unknown to us; we can trace the operation of outward matter, upon the organized material system, a few steps; but we soon lose sight even of these vestiges, and are obliged to acknowledge our ignorance of the workings of our own frame. We cannot give even a sketch of the speculations of philosophers on this subject, on which the history of philosophy, in fact, chiefly turns.

SENSITIVE PLANT *(mimosa pudica)*. This plant is celebrated for its apparent sensibility, shrinking and folding up its leaves on the slightest touch. These movements are doubtless mechanical. It is a native of tropical America, but is often seen in our green-houses. It is a low plant, with white flowers, disposed in heads, which are rendered somewhat conspicuous by the length of the stamens; the stem is prickly; the leaves are compound, consisting of four leaves, themselves pinnated, uniting upon a common footstalk. At the approach of night, the leaflets all fold together: the same takes place with the partial leaves; and, finally, the common footstalk bends towards the stem; at sunrise, the leaves gradually unfold, and recover their usual state; so far, this is evidently the effect of light; but the same phenomena take place on touching the plant roughly, only that it recovers itself in a short period. All these motions are independent of each other; and it is possible to touch a branch so gently that it shall shrink without the leaves being affected. Some other species of *minosa* exhibit the same phenomena, but in a less striking degree.

SENSUALISM. See *Philosophy*, division *French Philosophy*.

SEPIA, in natural history; the cuttle-fish, of which the generic character is as follows: The body is fleshy, receiving the breast in a sheath, with a tubular aperture at its base; it has eight arms beset with numerous warts or suckers, and in most species two pedunculated tentacula: the head is short; the eyes large; the mouth resembling a parrot's beak. These animals inhabit various seas, and in hot climates some of them grow to an enormous size. They are armed with a dreadful apparatus of holders, furnished with suckers, by which they fasten upon their prey and convey it to their mouths. They have the power of squirting out a black fluid resembling ink, and which is said to be an ingredient in the composition of Indian Ink. The bone in the back is converted into pounce. The eggs are deposited upon sea-weed, and resemble a bunch of grapes. At the moment when the female deposits them, they are white; but the males pass over them to impregnate them, and they then become black. They are round, with a little point at the end, and in each of them is enclosed a living cuttle-fish, surrounded by a gelatinous fluid. The species *(octopus)* found in the Mediterranean and Indian seas, sometimes grows to a vast size: the arms are said to be eight or nine fathoms long. The Indians carry hatchets in their boats to cut off the arms, should the creature attempt to fasten upon them under the water. The arms of this species taper to a point, and are joined at the base by a membrane or web, and covered within with two rows of alternate suckers. When opened, this animal is said to exhibit so brilliant a light as to illuminate a large room.

SEPOYS, OR SIPOYS (from *sip*, bow, or arrow, the original weapon of the Hindoo soldier); the name given in India to the forces composed of natives, disciplined after the European manner. The French were the first to see that the transportation of troops from Europe to their Indian colonies would be too expensive, and that Europeans would perish in great numbers by the exposure at sea and in the climate of India. They therefore took Hindoos into pay, and the English adopted the same policy. The East India company at present has a native force of nearly 200,000 men. There are several regiments of cavalry, and some companies of artillery composed of native troops. The pay of the sepoys is only fourteen shillings per month. Their dress is a red jacket, with a white cotton vest underneath, trowsers reaching only about half way down the thighs, and a light turban. Though not generally equal in courage and dexterity to European soldiers, they are hardy, and capable of enduring much, and very temperate in their food.

SEPTEMBER (from the Latin *septimus*, seventh); the ninth month of our year, but the seventh of the old Roman year, which began in March. See *Calendar*, and *Epoch*.

SEPTEMBRISEURS; the name given to the authors and agents of the horrible massacre of prisoners, in Paris, on the second and third of September, 1792. See *France, History of*.

SEPTENNIAL ELECTIONS. The members of the British house of commons are elected for seven years, as were those of the French chamber of deputies before the revolution in July, 1830. The period of seven years was introduced into England, with a reservation of the king's right to dissolve the house at his pleasure, and order a new election, under the administration of Sir Robert Walpole, in 1716; and into France in 1824, under count Villèle. This innovation was a slighter attack upon the constitution of England than of France. In England, it had always been the custom to elect the whole house of commons at the same time. In France, the fifth part of the chamber of deputies had, for many years, been renewed annually. In the former country, the existing state of things depended on a particular law; in the latter, the constitution had established the period of five years, and the partial renewal of the chamber of electors. The septennial election of the British house of commons was proposed in the house of lords, April 10, 1716, by the duke of Devonshire, on the ground that the election for three years, which had been practised till then, not only gave too frequent occasion for the great expenses of an election, but also too often produced party excitements, and afforded frequent opportunities for the intrigues of the Papists and Jacobites, who then threatened the tranquillity of the state, by means of their connexion with France, and had been with difficulty subdued, when the pretender had effected a landing in Scotland, in 1715. After a spirited debate, the bill passed in the house of lords by a majority of thirty-five votes; but thirty members signed a protest against it, on the ground that the triennial election comported with the spirit of the constitution, whereas a longer term would unduly restrict the electoral franchise, while corruption would become more frequent, and elections more expensive. In the house of commons, the bill was opposed with still more warmth; but after forty persons had spoken for and against it, it was passed by the house, 264 against 121. It deserves notice that the bill was advocated and carried by the whigs, notwithstanding the opposition of the tories. The former probably viewed it as a protection for the new dynasty against the house of Stuart, and as the most effectual means to exterminate Popery and Jesuitism, and to establish the superiority of Protestantism. In 1734, a new controversy arose about this act in the house of commons. The tories and the Jacobites (friends of the house of Stuart) proposed, in the lower house, to repeal it, and even some whigs were in favour of so doing; among them the celebrated Pulteney, the most zealous advocate of the bill in 1716. The two parties, however, were principally actuated by the desire of power. Lord Bolingbroke wished to put down the minister Walpole. Walpole, however, triumphed by a majority of 247 votes against 184, and Bolingbroke retired to France. But the opinion that the long duration of the house of commons is injurious to the freedom of elections, and favourable to every kind of corruption, has always prevailed in England. Pitt himself, when he advocated parliamentary reform in the session of May 7, 1783, called the Septennial election one of the greatest defects in the system of popular representation. His bill to restore triennial elections, in which he was supported by Fox, was rejected by a majority of only eleven. In 1824, the same subject was broached by celebrated statesmen in the French chambers. The French constitution of 1791 required an entirely new election; that of 1795, an election of a third part of the members; and that of 1799, the election of a fifth every year. The last regulation was retained in the charter of 1814, and the age required for every voter was thirty years, and for every representative forty. April 5, 1824, count de Corbiere, the minister of the interior, proposed, in the house of peers, that the whole chamber of deputies should be chosen at once, and that a new election should take place every seven years. The most distinguished speakers, in both chambers, viewed the proposed measure as a violation of an essential part of the charter. Its advocates maintained that it would prove a means of promoting public peace, by diminishing the occasions of public excitement, of producing a greater uniformity in the transactions of business, and of enabling the legislators, by means of their prolonged experience, to make better laws. The bill passed the chamber of deputies June 8, 292 to 87, and was confirmed by the king on the 9th.

SEPTUAGESIMA SUNDAY, the third Sunday before Lent, is supposed to take its name from its being about seventy days before Easter (*septuagesimus*, seventieth).

SEPTUAGINT, THE SEVENTY, or LXX; the Greek version of the Old Testament, which, according to the story of Aristæus, whom Josephus follows in his Jewish Antiquities, was made on the island of Pharos, near Egypt, by seventy-two learned Jews (whence the name *Septuaginta*, seventy), by command of Ptolemy Philadelphus, king of Egypt. The story further states, that although the translators were separated from each other, yet, through the operation of divine inspiration, their versions were, word for word, the same. This version is also called the Alexandrian, because it is said to have been prepared at Alexandria. (See *Alexandrian Copy*.) We probably owe it to some Alexandrian Jews, who, having lost the knowledge of the Hebrew, caused this translation to be made by some of their learned countrymen, for the use of the synagogues, about 285 B. C. At first, only the Pentateuch was translated; and the version of the remaining books of the Old Testament was accomplished gradually.

SEPULCHRE, HOLY. See *Palestine*.

SEPULTURE. See *Burial*, *Burying Places*, and *Cemetry*.

SEQUESTRATION; the act of separating a thing in controversy from the possession of both parties, till the right is determined by course of law. It is either voluntary or necessary: voluntary when it is done by consent of the parties, and necessary when it takes place by order of the official authority. The thing sequestered (*sequestrum*) cannot be claimed by either party till the dispute is decided. Persons may, in some cases, be sequestered, as well as things.

SERAGLIO, properly SERAI (q. v.); the palace of the Turkish sultan in Constantinople. It stands in a beautiful situation, on a point of land projecting into the sea. (See *Constantinople*.) Its walls embrace a circuit of about nine miles, including several mosques, spacious gardens, and buildings capable of accommodating 20,000 men, though the number of the sultan's household does not amount to above 10,000, including gardeners and menials. From the sea, it makes a fine appearance; but from the land side, the domes, the gilded cupolas, &c., are concealed by the thick and gloomy walls; and on passing by the great gate, the spectator is shocked by the sight of the heads of recently executed victims. The harem is the part of the seraglio occupied by the women of the sultan. (See *Harem*.) The principal gate of the seraglio is called *Babi Humayum* (Sublime Porte). The sultan is served by the *itch' oglans* (pages), called also *itch' agassys*, who are Asiatics of humble origin, and are divided into four chambers, according to their rank and service. The fourth and last of these chambers is called the *khasne odasshy* (treasury). The pages of this chamber are under the direction of the *kislar aga*, and are intrusted with the care of the treasures. It has been supposed that the seraglio contained treasures of great value. The sultans piqued themselves upon leaving large sums in the treasury. Whatever, therefore, the sovereign could collect during his life, was shut up at his death in his *khasne* chamber, with an inscription in letters of gold, *This is the treasure of the sultan A. B.*, which was never touched except in extreme cases. The mutes of the seraglio, about forty in number, are the court fools: they were formerly obliged to perform all the capital executions in the empire. The dwarfs are also subjects of mirth at court, and are often used as footstools for the sultan to mount his horse. The *capidgibaschis* (see *Capi Aga*) are the door-keepers of the seraglio; and the *bostangi* (q. v.), a numerous corps who serve in the interior of the seraglio. We may here remark, that among the 5—6000 men employed in guarding the interior of the seraglio, not a single fire-arm is to be found. The *bostangi-baschi* is, after the *kislar aga*, the second person of the seraglio, and is the only individual, except the sultan, allowed to wear a beard within the palace. The *baltagis* (wood-cutters) are of the same condition as the preceding, and make a part of the household guard and servants. Besides these, the sultan has also a life-guard (*peicks* and *solacks*), who accompany him when he leaves the seraglio.

SERAI; a large building for the accommodation of travellers, common in the Eastern countries. In Turkey, these buildings are commonly called *khans;* in Persia, *caravanserais*, by corruption *caravansaries;* but in Tartary and India, simply *serais.* The erection of them is considered a meritorious act by Hindoos as well as Mussulmans. See *Seraglio.*

SERAMPORE, OR SERAMPOUR; a town in Bengal, belonging to the Danes, on the west bank of the Hooghly, twelve miles north of Calcutta; lon. 88° 26′ E.; lat. 22° 45′ N.; population, about 5000. It is pleasantly situated, the territory extending one mile along the river, and half a mile in breadth. The houses are built of brick and plastered, but few of them are of more than two stories, with flat roofs, balconies, and Venetian windows. It is not fortified, but has a battery with twelve pieces of cannon, and carries on a trifling trade with Europe, China, &c. This town is the head-quarters of the Baptist missionaries in India. They commenced their establishment here in 1799, and have ever since been engaged in propagating Christianity, and translating and printing the Scriptures. (See *Missions.*) A college for the education of native preachers has also been established here, which lately received a charter from the king of Denmark, with power to confer degrees.

SERAPH (in the plural, *seraphim*); the name applied, by the prophets of the Old Testament, to the highest class of angels that surround God's throne. (See *Hierarchy.*) The word is Hebrew, signifying *nobles*, the *great*, who surround the royal throne. The Franciscans are styled the *seraphic order* (see *Francis of Assisi*); and Bonaventura was called the *seraphic doctor.*

SERAPIS; tutelary god of Egypt, by some considered as an old deity identical with Osiris, by others as introduced from abroad. In Alexandria he was the chief deity.

SERASKIER, with the Turks; the generalissimo of a whole army. He has very extensive power, but is under the grand vizier, and is chosen from among the pachas of two or three tails. Sometimes, also, commanders of a lower rank are called *seraskiers.*

SERENADE (Italian, *serenata*, from the Latin *serenus*, clear); properly, music performed in a clear night; hence a musical entertainment provided by a lover under the window of his mistress. It consists, generally, of instrumental music, but vocal is sometimes added. The practice existed even among the Greeks and Romans. Such music is sometimes performed merely as a mark of esteem and good will towards distinguished persons, and then is not unfrequently accompanied by long processions with torches. Hence the different character of serenades. A single singer may accompany his song with the guitar, mandoline, lute, &c.; or wind instruments may be used, as flutes, horns, clarionets, hautboys; or, as is the fashion in some of the largest cities of Northern Germany, many singers may join. Serenades are also sometimes used as concert pieces, and then, of course, experience some change of character.

SERENDID; one of the names of Ceylon.

SERGEANT, OR SERJEANT, in war, is an inferior or non-commisioned officer in a company of foot, or troop of dragoons, appointed to see discipline observed, to teach the soldiers the exercise of their arms, and to order, straighten, and form ranks, files, &c.

SERGELL, JOHN TOBIAS, a celebrated Swedish sculptor, born at Stockholm, in 1740, began his career as a stone-mason, but afterwards became a pupil of L'Archeveque, whom he accompanied to France. He subsequently went to Italy, at the expense of the king of Sweden, and acquired great celebrity. In 1778, he returned to Sweden, visiting Paris in his way, where he was nominated a member of the academy of fine arts. He then visited London, reached Stockholm in 1779, and, on the decease of his preceptor, succeeded to his place. In 1784, he accompanied Gustavus III. on his travels to Italy; in 1795, was made a knight of the Pole Star; and, in 1810, received letters of nobility, and was appointed superintendent of the police. His works are chiefly confined to Sweden. He died February 26, 1814. Depth of thought and vigour of conception, energy and grace, are the characteristics of his style. His Cupid and Psyche; Diomedes carrying off the Palladium (in England); Mars and Venus; a Faun; Oxenstiern dictating the History of Gustavus Adolphus to the historic Muse,—are among his principal statues. Among his groups are the monument of Descartes; the Resurrection of Christ; a bass-relief; two angels over the altar in the cathedral of Carlstadt, &c. Byström is his most celebrated pupil.

SERIES, in general, denotes a continued succession of things in the same order, and having the same relation or connexion with each other.

Series, in mathematics. See *Progression.*

Series, Infinite, consists of an infinite number of terms, so that, let the series be carried to any assignable length or number of terms, it can be carried yet farther without limitation.

SERINGAPATAM, OR SRI-RANGA-PATANA; a city of Hindoostan, in Mysore, and, for a considerable time, the capital of the province; 215 miles south-west of Madras, lon. 76° 51′ E.; lat. 12° 26′ N. The population in 1800 was estimated at upwards of 20,000; in 1820, it was stated at less than 10,000; the diminution is owing to the removal of the court. It is situated at the upper end of an island in the Cauvery, and has existed as a fortress from a remote period. During the reigns of Hyder Aly and his son Tippoo Sultan, it rose to a degree of wealth and splendour before unknown, and was supposed to contain 150,000 inhabitants. In 1792, Seringapatam was invested by the British and allied armies, under lord Cornwallis, amounting to 400,000 men. Tippoo Sultan, terrified, relinquished half his dominions, and paid to the conquerors £3,500,000 sterling. In 1799, it was again invested by the forces of the British and Nizam, and taken by storm, May 4th, Tippoo Sultan and nearly 8000 of his men having fallen. Seringapatam afterwards became the property of the British, and is the residence of a judge, collector, &c., but has greatly declined from its former importance.

SEROUX D'AGINCOURT, JEAN BAPTISTE, born at Beauvais in 1730, died in 1814. He passed a great part of his life in Italy, devoted to the study of the arts. Besides his *Recueil de Fragments de Sculpture antique en Terre cuite* (4to., 1814), we have from him a very learned work, entitled *Histoire de l'Art par les Monuments, depuis sa Décadence au cinquième Siècle, jusqu'à son Renouvellement au quinzième Siecle* (3 vols., folio, 325 plates, Paris, 1810—1823).

SERPENT. The serpents, or *ophidia*, form a very natural class of reptiles, in general easily distinguished by the total absence of feet, not the slightest vestige of which is discoverable on the most minute dissection. Their motion is, notwithstanding, very rapid in some species, and is accomplished by means of the sinuosities, or folds, which they form with their bodies. When in a state of repose, they usually dispose themselves in coils, with the head in the centre; and many are enabled to spring to a certain distance by the sudden unfolding of these coils. Serpents are destitute of moveable eyelids, or distinct tympanums. All have teeth, but they serve only to retain their food, and are not adapted to the purpose of mastication. They are long, very sharply pointed, and incline backwards. The venomous species have the maxillaries very small and moveable, and in them are implanted two teeth much longer than the rest, and traversed by a canal, for the purpose of transmitting the poison. These fangs are projected forward in the action of biting, but at other times, are disposed along the roof of the mouth, in such a manner as hardly to be discoverable at first sight. The jaws of serpents are united by ligaments in such a manner as to admit of great extension, which enables them to swallow animals of much greater diameter than their own bodies. The tongue is remarkably extensible, and terminates in two long cartilaginous points. They have only one lung. The skin, in different genera, is annulated, coriaceous or granulated, or, most frequently, covered with scales. They feed on quadrupeds, reptiles, insects, or worms, and swallow their prey entire. They do not drink, and the power of digestion is slow, one meal serving them for weeks, or even months; but when an opportunity offers, they take an enormous quantity of food. The ribs are very numerous, and surround a great portion of the trunk. The muscles, even in the smaller species, are endowed with an astonishing power of constriction; and those species which attain the enormous dimensions of thirty feet or more, are enabled to destroy the larger quadrupeds by involving them in their folds. Serpents inspire an instinctive horror in man and most animals. Their hissing, in some species, is truly startling; but, notwithstanding, most of them are perfectly harmless. In northern climates, they pass the winter in a torpid state, and change the epidermis in the spring. The eggs are rounded, and agglutinated in bead-like rows by a mucous substance, and, in the venomous species, hatch before they are excluded from the oviduct, and the young are born living. The females often take care of their young for a time, and, on the approach of danger, have been seen to receive the whole family in their throats, and, when it has passed, to restore them again to the open air. More than three hundred species are enumerated, most of which, including all the gigantic species, inhabit tropical climates. South America, in particular, abounds with them. The venomous species compose about one fifth or one sixth of the whole number; and among these are some whose bite is fatal in a few hours, and even minutes. But few species, and these mostly harmless, inhabit cold climates; and towards the poles, they seem to be entirely wanting. The venom of the European viper is neither acid nor alkaline, neither acrid nor caustic; is insipid to the taste, and harmless when taken internally; in short, possesses most of the external characters of simple mucus. It preserves its power after the death of the animal which furnished it. Its strength varies in intensity according to the warmth of the climate and season of the year, being much more dangerous in summer than in winter; as also according to the lapse of time which has intervened since the last bite, and the degree of irritation with which the action is performed. It is much more fatal to small animals than to large, and especially when they are much terrified.

The boas or anacondas inhabit tropical America, and are, in general, easily distinguished by having the plates under the tail undivided. Some attain a gigantic size, and curl their tails about the trunks or branches of trees, and, in this position, lie in wait for the larger quadrupeds. The pythons equal them in size, and pursue the same mode of life. They inhabit the tropical parts of the eastern continent.—The species of hydrus are small aquatic serpents, having the extremity of their tails enlarged, and very much compressed; which conformation gives them greater facility in moving through the water. They inhabit the intertropical parts of Asia, and the neighbouring islands, and in some situations are very abundant.

The rattle-snakes (*crotalus*) are exclusively American, and are celebrated for the violence of their poison. They are easily distinguished by the noisy instrument at the end of the tail, composed of horny sacks loosely inserted into each other. The banded rattle-snake grows to the length of four or five feet. It inhabits the Northern and Middle States from about lat. 46°, and is also found in the Western States, and beyond the Mississippi. —The diamond rattle-snake (so called from a row of large black rhomboidal figures disposed along the back) attains larger dimensions, and inhabits the Southern States. The same, or a very similar species, is found in South America.—The ground rattle-snake (*C. miliarius*) is a small species, inhabiting the Southern as well as the Western States. It has but two or three rattles on the tail, and is much dreaded, as its small size, and the slight noise of its rattle, render it more liable to be overlooked.—The copper-head (*trigonocephalus tisiphone*) is as dangerous as the rattle-snake, which it much resembles, but is destitute of the rattle at the extremity of the tail. The colour is brown, with clouded spots of a deeper hue. It is widely diffused through the United States.—The *elaps fulvius* inhabits the southern and south-western parts of the United States. The length is about two feet, and the tail very short. It is marked with about twenty broad black rings, alternating with about as many yellow ones. The last are speckled with brown, and are whitish on the margin. The above are the principal poisonous American serpents.

The following are entirely harmless:—The hog-nose snake (*heterodon*) is a remarkable reptile. The nose is slightly turned up, and flattened in front, bearing a remote resemblance to the snout of the animal whose name it bears. It possesses the power of dilating laterally the head and upper part of the neck, and, in this state, makes a formidable appearance. It is widely diffused through the United States, but, like many others, is not found eastward of the Hudson river.—The black snake (*coluber constrictor*) is found throughout the United States. The colour is black, inclining to slate colour beneath, with the throat and lips white. The scales are smooth. It grows to the length of six feet, and its motions are very rapid.—The chain snake (*C. getulus*) is an allied species also, with smooth scales. The colours are black and white, the black predominating. The white often forms transverse lines on the back, which unite on the sides, thus forming the semblance of a chain. The markings are, however, extremely variable; and individuals are found entirely black, thickly sprinkled with regularly oval white specks. It inhabits the Southern States, but is sometimes found as far north as New Jersey.—The coach-whip snake (*C. filiformis*) is a very long and slender species, rarely found, and only in the more southern states.—The water snake (*C. sipedon*) is found in all parts of the United States, and is very common in the vicinity of Philadelphia. Its usual colour is brown on the back, beneath pale, with indistinct dark spots; but the markings vary exceedingly, and it is often found transversely banded with white. This variation has given rise to much confusion in the books, where it is repeatedly described under different names. The body is thick in proportion, and it attains large dimensions, sometimes growing to the length of five feet. It frequents exclusively the borders of streams, and, when disturbed, often takes refuge in them, and conceals itself at the bottom.—The striped or garter snake (*C. sirtalis*) is the most common species in most parts of the United States. The colour is brown above, with black specks, and three longitudinal lines of greenish yellow.—The collared snake (*C. Edwardsii*); a small species, of a dark leaden colour on the back, having a whitish band disposed across the back of the head. It is found under the bark of trees, from lat. 43° to South Carolina.—*C. Amœnus* (Say); a still smaller species, with a remarkably small head; the colour brownish above, and reddish beneath; the scales smooth. It is found, beneath stones and logs, in the vicinity of Philadelphia, but is rare.—*C. septemvittatus* (Say); with seven longitudinal blackish lines, three above, and four beneath; the general colour, brown above, and yellowish beneath; a small species, inhabiting the Middle and Western States.—The scarlet snake (*C. coccineus*), beautifully marked with scarlet, black, and yellow, inhabits the Southern States.—The green snake (*C. æstivus*); a small species, entirely of a bright green colour. The scales are carinated. It is found in the Southern States.—*C. vernalis;* another green snake, resembling the former, but with smooth scales, inhabiting the Northern and Middle States.—The pine snake (*C. melanoleucus*); one of the largest species, attaining the length of eight feet. The colour is whitish, with large blackish spots. It is common in New Jersey, and is found in all the more southern and western parts of the United States, and even beyond the Mississippi. It is of a gentle disposition, and is sometimes tamed and kept about houses.—The chicken snake, or house snake (*C. guttatus*), is a beautiful species. The body is elongated, somewhat flattened on the back, with smooth scales; the colour whitish; a row of large brownish spots, bordered with black, upon the back; a second series of smaller and darker ones on each side, alternating with the former; beneath, with small, square, black specks. The abdominal plates and subcaudal scales are very numerous. It attains a large size, and inhabits all parts of the United States, from Canada to Florida, as also the trans-Mississippi region. Although it is pretty constant in its markings, no one of the snakes has been the occasion of so much confusion among systematic writers; and it appears repeatedly in the books under a great variety of specific names. The glass snake of the Southern States is destitute of feet, and possesses many of the external characters of a serpent; but its anatomical structure shows it to belong to the family of lizards. It is excessively brittle, and is broken with the slightest blow; which circumstance has given rise to the name.

SERPENT-EATER (*serpentarius*); a remarkable South African bird, belonging to the *rapaces*, or birds of prey, but differing from the hawks and owls in having feet incapable of grasping, and very long legs. Accordingly, it keeps constantly on the ground, in sandy and open places, and wages continual war against reptiles, especially serpents, which it pursues on foot. It runs with great rapidity. In every respect except the feet, the anatomical structure is the same with that of the eagle. When this bird attacks a serpent, it covers its breast with one wing, to protect itself from the bite, and with the other strikes violent blows, until it has stunned its prey. It then breaks the cranium with the beak, and tears the reptile in pieces, or, if small, swallows it entire. The serpent-eater is easily tamed, and is often kept in poultry-yards by the inhabitants of the cape of Good Hope, for the purpose of destroying lizards, snakes, rats, &c. It soon becomes habituated to the poultry; but care must be taken not to leave it fasting too long, for on such occasions it does not scruple to satisfy its hunger with the young chickens. The wild bird is very shy, and difficult of approach. This bird is sometimes called the *secretary*, from some long feathers on the back of the head, in allusion to the custom of placing pens behind the ear.

SERPENTINE; an abundant mineral, which almost invariably occurs destitute of a regular crystalline form. A few instances of crystalized serpentine, however, have been observed, and the form appears to be a right rectangular prism. The massive varieties have a granular, or impalpable composition, and present red, brown, black, yellow, and gray colours, in veined, spotted, and other delineations. Fracture flat, conchoidal, or uneven; surface almost dull; lustre resinous, indistinct; streak white, acquires some lustre; translucent to opaque; sectile; hardness about that of calcareous spar; specific gravity 2·5. Serpentine is generally divided into two sub-species, the *common* and *precious* serpentine, the former of which consists of those varieties which are destitute of handsome colours, while the latter includes all such as, from the intensity and arrangement of their hues, are suited to purposes of ornament. Serpentine hardens on being exposed to the fire, and melts only (with great difficulty) on the edges. According to John, it consists of

Silica,	42·50
Magnesia,	38·63
Alumine,	1·00
Lime,	0·25
Oxide of iron,	1·50
Oxide of manganese,	0·62
Oxide of chrome,	0·25
Water,	15·20

Serpentine forms mountain masses, and beds in primitive rocks, and frequently contains crystals, grains, or compound nodules of various other species. Precious serpentine, in particular, is often mixed with granular limestone. It is met with in most European countries. Serpentine is turned, on the lathe, into vases, and also worked into different ornaments.

SERRA DA ESTRELHA (*Mons Herminius*); a lofty range of granite mountains in Portugal, a continuation of the Spanish chain of Guadarrama, extending into the province of Beira. Its highest summit (the Cantaro Delgado) is 8000 feet high, and is covered with snow from October to June. The ridge contains some remarkable lakes, part of which are tepid. The mountain streams Condieira and Unhaes form fine cascades over the rocks. The scenery around is highly picturesque and very interesting.

SERTORIUS, QUINTUS, a distinguished Roman general, was born at Nursia, in Italy, and at an early age served with reputation under Marius, against the Cimbri, and in Spain. As questor, in Cisalpine Gaul, he led a body of troops to the aid of his native country in the Social war (A. U. 663), and lost an eye in the war, in which he fought with his usual bravery. In the quarrel of Marius and Sylla, Sertorius at first took no part; but, in consequence of Sylla's opposition to his election as consul, he joined the party of Cinna, and thus became connected, contrary to his intention, with Marius. After the death of Marius and Cinna, Sylla again acquired the ascendency, and Sertorius was proscribed, and fled to Spain. Here his talents found a wide sphere of action. He endeavoured to gain the affections of the Spaniards, and to organize a force capable of resisting Sylla, who had sent a large army for the subjugation of Spain. The means of Sertorius were unequal to the conflict, and he embarked at New Carthage, passed into Africa, and took part in a war between the king of Mauritania and his subjects, on the side of the latter. Having gained several victories, and liberated the Mauritanians, he was requested by the Lusitanians, who were threatened with war by the Roman general Annius, to take command of their forces. Sertorius eagerly seized this opportunity of encountering Sylla. Invested with unlimited powers, he appeared at the head of the Lusitanians, who placed the most implicit confidence in him. Opposed to much superior forces, he displayed the talents of a skilful general, fatiguing the enemy by hasty marches, harassing them by ambuscades, attacking them in defiles, and avoiding a general engagement where he was not sure of the victory. With 8000 men, he was thus enabled to resist four Roman generals, at the head of 120,000 foot soldiers and 6000 cavalry, and to hold nearly all Spain against them. Even Marcellus, whom Sylla finally sent against him, and constantly reinforced with new troops, could effect nothing, and suffered several severe defeats. The youthful Pompey (q. v.) who, after the death of Sylla, led an army into Spain, and acted in concert with Marcellus, met with no better success. Yet Sertorius, from love of his country, would have consented to submit, had the proscription against him been revoked. His fame even reached Mithridates, who offered him 3000 talents and forty ships of war, on condition of his forming an alliance with him. Sertorius, who fought with reluctance against Rome, and was unwilling to see the republic humbled or enfeebled, accepted the offer, on Mithridates consenting to restrict himself to the recovery of Bithynia and Cappadocia. He accordingly received the sum agreed upon, and was making preparations for pushing the war with greater vigour, when he perished by the treachery of his friends. Perpenna, who had formed a conspiracy against him, assassinated him at a feast, A. U. 682. Thus was Rome delivered from a formidable enemy, who equalled the greatest heroes of antiquity in military talents, while he surpassed most of them in the virtues of his character.

SERUM. See *Blood.*

SERVANT. See *Master and Servant.*

SERVETUS, MICHAEL, a learned Spaniard, memorable as a victim of religious intolerance, was born in 1509, at Villa Nueva, in Arragon. He was the son of a notary, who sent him to Toulouse for the study of the civil law. Excited by the discussions of the Reformers in that city, he printed a tract in disparagement of the orthodox doctrine of the Trinity, entitled *De Trinitatis Erroribus* (1531), which production was followed the next year by his *Dialogorum de Trinitate Libri duo.* His circumstances being depressed, he engaged for some time with the Frelons, booksellers of Lyons, as corrector of the press. He then went to Paris, where he studied physic. He graduated at Paris, but quarrelled with the faculty, and repaired to Charlieu, near Lyons, where he practised three years, whence, at the instance of the archbishop of Vienne, he removed to the latter city. During this time he was in constant correspondence with Calvin, with whom he discussed points of controversy, consulting him in respect to his writings and Arian notions. Of this confidence Calvin subsequently made a base use, by producing his letters and manuscripts as matters of accusation against him. In 1553, Servetus published his matured theological system, without his name, under the title of *Christianismi Restitutio;* but Calvin took care that the magistrates of Vienne should be duly informed of it, and Servetus was committed to prison, whence he contrived to escape, and thereby avoided that fate from Catholic hands which he was soon after to suffer from those of the reformers. Purposing to proceed to Naples, he imprudently took his way through Geneva, where Calvin induced the magistrates to arrest him on a charge of blasphemy and heresy, advanced against him by a person who had been a servant in Calvin's family. In order to ensure his condemnation, his various writings were sifted for accusations; and, as a proof of the malignity and injustice which he encountered, it may be mentioned that one of the charges was extracted from his edition of Ptolemy's Geography, in which he asserted that Judea had been falsely extolled for its beauty and fertility, modern travellers having found it both sterile and unsightly. The magistrates of Geneva were, however, aware that many eyes were on them, in respect to this extraordinary treatment of a person who was neither a subject nor a resident, but, properly speaking, a traveller kidnapped in his passage. They thought proper, therefore, to consult the magistrates of all the Protestant Swiss cantons, who referring the matter to their divines, the latter unanimously declared for his punishment. As he refused to retract his opinions, therefore, he was condemned to the flames, which sentence was carried into execution the 27th of October, 1553, in the forty-fourth year of his age. Servetus is numbered among the anatomists who made the nearest approach to the doctrine of the circulation of the blood, as appears from a passage in his *De Restitutione Christianismi.* The life of Servetus has been written in Latin by Mosheim (Helmstädt, 1728).

SERVIA (Turkish, *Serf-Vilajeti*); a province of European Turkey, bordering on Walachia, Bulgaria, Macedonia, Albania, Bosnia and Hungary, from which last it is divided by the Danube. It contains 19,500, or, according to some, 21,200 square miles, and 960,000 inhabitants. This thin population is owing, partly to the desolating wars to which the country has been exposed for centuries, but principally to the oppression of the Turkish government. Servia contains immense forests; but the soil is very fertile, and cattle are raised in large numbers. Agriculture and commerce are in a very low condition. There are no manufactures except some of cotton. The country forms a part of Rumili, and is subject to a pacha, who resides at Belgrade, the capital. Besides Belgrade, Semendra and Nissa are the most important cities. In the fortified village of Passarowitz, July 21, 1718, a peace was concluded between Austria and the Porte, very advantageous to the former. On the plains of Cossova or the Amselfeld, on the borders of Bosnia, the Turkish sultan Amurath I., in 1389, defeated the Servians; and, Oct. 19, 1447, in the same place, Amurath II. triumphed over the Hungarian and allied forces under John Hunniades, and was stabbed in his tent by Milosch Kobilitschk, a Servian. Servia is a part of ancient Illyria, which the Romans reduced under their dominion. The proper name of the province was Mœsia. Belgrade (Taurunum) belonged to Lower Pannonia. About the middle of the seventh century, Sclavonic tribes overspread all these regions. One of those tribes, the Servii (Serbi), a branch of the Sarmatians, to which the emperor Heraclius had previously assigned a portion of Macedonia, expelled or subdued the aborigines, the Illyrians, and kept possession of their country. From them it derived the name of *Servia*, which at that time included Bosnia.

The Servians were almost incessantly involved in quarrels with the Greek emperors, Hungary, and the republic of Venice, and, notwithstanding their valour, were generally worsted. After they had been under the dominion of the Greek emperors for many years, though governed immediately by their own princes, they formed an alliance, in 1150, with Hungary, to oppose the emperor Manuel Comnenus. Manuel defeated them in 1151. A second attempt to make themselves independent was equally unsuccessful. Isaac Angelus, the Greek general, afterwards emperor, defeated them, in 1193, on the Morava. In the ninth century, Budimir, the first Christian prince, divided the country into several provinces. One of them, Bosnia, afterwards withdrew from the general government, and eventually came into subjection to Hungary, though it retained its own rulers. In the beginning of the fourteenth century, Milatin Urosch, king of Servia, was compelled by Charles I., king of Hungary, to cede a part of his territory. King Stephen Duschan (who reigned from 1336) made many successful expeditions against the Greek emperors, and subdued some of the neighbouring provinces. He assumed the title of emperor, and distributed the empire of Servia into several governments; but he thus prepared the way for its fall and subsequent dissolution. During his reign, Amurath I., the Turkish sultan, as above related, defeated the Servians, June 15, 1389, on the Amselfeld. Bajazet, Amurath's successor, divided Servia between Stephen, son of Lazar, the last ruler, and his son-in-law, Wuk Brankouitsch. Both were compelled to pay tribute to him. Servia now became the chief theatre of the unhappy wars between the kings of Hungary and the Porte. After the battle on the Amselfeld in 1447, in which Amurath II. conquered the Hungarians under Hunniades, Servia was completely subdued by the Turks. The successes of Eugene, indeed, procured for Austria, at the peace of Passarowitz, in 1718, the largest part of Servia, that is, the northern part, with the capital, Belgrade. But by the peace of Belgrade, in 1739, Austria again lost all this territory, and it was transferred to Turkey. The barbarity of the Turkish governors and the arrogance of the janizaries led to an insurrection in 1801. George Petrowitsch, a man of courage, known by the name of *Czerny George*, placed himself at the head of the malcontents, and fought, for eleven years, with the greatest ardour. The Servians received assistance secretly from the Russians, and their army was at length increased to 30,000 men. Czerny George, taking advantage of the weakness of Turkey, demanded that Servia, like Moldavia and Walachia, should be elevated to a principality, under a Greek hospodar. The demand was rejected. After the Servians had gained some successes over the Turks, Russia declared in their favour, and a Russian army marched into Moldavia to their aid. Supplied by the Russians with warlike stores, particularly with cannon and engineers, Czerny took Belgrade, in December, 1806, and, some time after, Shabacz and Nissa. The Servian army was now increased to 80,000 men. The Turks, occupied with other troubles in the interior of their country, and repeatedly defeated by the Servians and Russians, at length proposed an armistice, which was concluded, July 8, 1808, at Slobosje, at the Servian headquarters. Czerny George, with the other chiefs of his nation, now prepared a constitution for Servia, under the protection of Russia. Having been before appointed chief ruler by the people, he was formally declared prince of Servia, and recognised by the Russian emperor, who, at the same time, made him lieutenant-general of the Russian army, and knight of the order of Alexander Newsky. When the war broke out again, in March, 1809, between Russia and the Porte, Czerny George, with his Servian troops, took part in it, and essentially aided the Russian arms. But the invasion of Russia by the French, in 1812, put a sudden end to the war, and led to the peace concluded at Bucharest, May 28, 1812, between Russia and the Porte. It was agreed, in the conditions of the peace, that the Porte should treat the Servians with kindness, and grant them a full amnesty. The fortresses erected by them in their country during the late war, were to be demolished, and the remainder to be put into the hands of the Turks. The administration of its internal affairs was committed to the nation. The Servians were to enjoy the same advantages with the Turkish subjects in the islands of the Archipelago and in other countries. At the end of July, 1812, the Russian troops left Servia. Many of the Servian chieftains, who were most devoted to their cause, accompanied them. The war between Servia and the Porte began anew in July, 1813, and was prosecuted with much bitterness, and with various success. After it had continued nearly four months, the Turks prevailed. Czerny George and his adherents fled to the neighbouring states. The conquerors treated those who remained with the greatest cruelty. The country was made a desert. Finally, under the conduct of Milosch, the Servians concluded the treaty of December 15, 1815, which made them not so much the subjects as the dependants of the Porte. The attempt of Czerny George, in July, 1817, to kindle a new war, cost him his life. Till 1820, negotiations with the Servians were continued in Constantinople. They demanded that no Turk should possess property in Servia without the walls of Belgrade. It was granted. From that time the country has been governed by a senate, which consists of a president, Milosch, who was made prince in 1817, and four members or Servian representatives. The senate holds its sessions at Semendra, a fortified city on the Danube, containing 8000 inhabitants and an archbishop; also the residence of the hospodar Milosch Obrenowitsch, formerly a general under Czerny George. The Servians have their own judges and local magistrates, and have an agent constantly at the Porte. They pay to the Porte only the *kharadsh*, which amounts to one ducat for every father of a family, and one piaster for every other member. No Servian is permitted to reside permanently in Turkey, and no Turk in Servia. Belgrade and all the Turkish fortresses in Servia are occupied by Turkish troops. In case of a war between the Porte and any foreign power, the Servians are to furnish 12,000 men. The orders of the vizier, who remains with the Turkish garrison in Belgrade, are committed for execution to prince Milosch. This ruler, in 1825, put down, with an iron hand, a rebellion excited by his own severity, and was rewarded for it with the high office of hospodar. In the war of Russia with the Porte in 1828, the Servians were ready to rise in support of Russia. —See Ranke's *Serbische Revolution* (Hamburg, 1829).

Servian Language and Literature. The Servian language, generally called the *Illyrian*, is a Sclavonic dialect, and, among all the southern Sclavonic idioms, the most powerful. It is spoken by five millions of people, from the Culpa to the Timeck. The Sclavonic dialect, spoken in Bulgaria and Bosnia, differs little from the Servian. Recently the Servian has been more cultivated. In 1814, Wuk Stephanowitsch published, in Vienna, a Servian grammar (translated into German, with a preface by J. Grimm, and remarks by Vater, Berlin, 1824). In 1819, he published his Dictionary of the Servian Language, with German and Latin Definitions, containing above 30,000 words in common use. In the Servian poetry, the excellence of which Göthe and Grimm have acknowledged, a Sclavonic character of rude energy is united with an Oriental warmth. In 1823, Wuk Stephanowitsch published three volumes of Servian poetry, at Leipsic, which have been translated into German. Some of the songs are uncommonly fine. In 1826, he published *Danitza* (i. e. Morning Star), an annual for ladies, in Servian. The most recent publications in Servian literature are Simeon Milutinowitsch's *Serbianka*, a series of Servian heroic songs, which celebrate the insurrection of Servia, of which he was an eye-witness (4 vols., 12mo., Leipsic, 1827), and two Servian translations of Horace's *Ars poetica* (Vienna, 1827), in hexameters, and in the heroic measure of the Servians. Both are by Johannes Hadsitsch (under the name of Milosch Swetitsch). The Servian prose has produced little besides theological and religious works. In fact, the literary dialect is not yet settled: the Servian scholars are not agreed whether the artificial book language, formed after the ecclesiastical Servian, and which has been in use for almost four centuries, or the common dialect of the country, shall become the language of literature. In the former Raitsch has written his History of various Sclavonic Tribes (Vienna, 1792, 4 vols.).—See Bowring's *Servian Popular Poetry* (London, 1827).

SERVICE TREE (*sorbus*); a pretty large European tree, closely allied to the apple and pear, but easily distinguishable by its pinnated leaves. The flowers are numerous, disposed in corymbs at the extremities of the branches, and are succeeded by very small, rounded or pear-shaped fruit. This fruit is excessively austere and astringent before perfect maturity, is little esteemed, and difficult of digestion, but, notwithstanding, is sometimes eaten when in a state of incipient decay. The tree attains the height of forty or fifty feet, but the growth is exceedingly slow, the trunk hardly acquiring the diameter of a foot in a century. The wood is very hard, compact, solid, fine-grained, and susceptible of a brilliant polish. It is in great request among turners and cabinet-makers, and is very dear, especially the larger pieces. The service tree grows wild in most parts of Europe, and is, besides, occasionally cultivated.—The mountain ash is a second species of *sorbus*, often cultivated as an ornamental plant. It does not exceed the height of twenty or twenty-five feet, and is found wild in many parts of Europe. In the northern parts of the United States, there is a species of *sorbus* (*S. Americana*) closely resembling the mountain ash, and also frequently cultivated in European gardens. It is found wild as far south as lat. 43°, and is frequent in Canada. Another species (*S. microcarpa*) inhabits the range of the Alleghany mountains.

SERVILE, a Spanish word of the same meaning with the English *servile*, was the name given to the opponents of the liberal changes, contemplated by the cortes, from their first session in 1808. In 1823, when the French put down the liberals, the apostolical party (so called) obtained the ascendency, which under the present queen they have lost.

SERVILE ARTS. See *Arts.*

SERVING is the winding any thing round a rope to prevent it from being rubbed; the materials used for this purpose, which are called *service*, are generally spun-yarn, small lines, sennit, or ropes, sometimes leather, old canvass, &c.

SERVITES, OR SERVANTS OF THE HOLY VIRGIN; a religious order, founded at Florence in 1233, which became numerous, particularly in Germany and Italy and received the privileges of the mendicant orders, but never had much influence in the church. (See *Orders, Religious.*) The monks were also called Brethren of the Ave Maria, because they always began their conversation with the words of the angelic greeting, and Brethren of the passion of Christ. They follow the rule of St Augustine, and wear a black dress. Their general has the fifth place among those of the mendicant orders at Rome. They have, in recent times, lost much of their consideration. Paul Sarpi and Ferrarius belonged to this order.

SERVITUDE (*servitus*), in the civil law, is the right to the use of a thing, without property in the same, for all or for some particular purposes. This right, by the Roman law was not confined to any particular kind of property, but could either be limited to a particular person (*servitus personalis*), or so connected with real property (*prædium dominans*), that the owner of the same, whoever he might be, could exercise his right upon the estate subjected to the servitude (*prædium serviens*). The servitude consisted either in a right to do some act, as to gather fruit from the estate, &c. (*servitus affirmativa*), or to prevent the owner of the property from doing certain acts, as building walls beyond a certain height, blocking up a window, &c. (*servitus negativa*). The owner of a property to which a servitude was attached, could not, by the Roman law, be obliged to perform any act himself (*servitus in faciendo consistere nequit*): but this rule is not adhered to, in modern times, in those countries where the civil law prevails. Personal servitudes consist either in the full use of the property, and its products (*usus fructus*), or in a limited use (*usus*) of the same (as, for instance, merely free occupancy—*habitatio*). The usufruct was originally allowed only in regard to those things which were not consumed in the use, but was afterwards extended to such things as were consumed by use, but could be replaced by articles similar in number and quality (*quasi usus fructus*). Servitudes connected with real estate (*servitutes prædiorum*), which were divided into servitudes on tenements (*prædiorum urbanorum*), and servitudes on land (*prædiorum rusticorum*), were, by the old Roman law, required to be attached to a permanent cause (*causam perpetuam*), and to be designed for the preservation of some actual advantage. They could not, therefore, by the Roman law, be limited by conditions, or for a term of time, but were inseparable from the property, and indivisible. Servitudes being burdens upon an estate, the usufructuary must respect the rights of the owner of the same, and use his own rights *civiliter*, that is, with as little injury to the former as possible.

SERVIUS TULLIUS, the sixth king of Rome, was the son of a slave, given by Tarquin to Tanaquil, his wife. Young Servius was educated in the palace of the monarch, and raised himself to so much consequence, that Tarquin gave him his daughter in marriage. Servius became the favourite of the people and the darling of the soldiers, and was raised to the throne, on the death of his father-in-law. He defeated the Veientes and the Tuscans, established the census, beautified the city, and enlarged its boundaries by taking within its walls the hills Quirinalis, Viminalis, and Esquilinus. He also divided the Roman people into tribes, and built several temples. Servius married his two daughters to the grandsons of his father-in-law; the elder to Tarquin, and the younger to Aruns. The wife of Aruns murdered her own husband, to unite herself to Tarquin, who had likewise assassinated his wife. Servius was murdered by his own son-in-law, and his daughter Tullia ordered her chariot to be driven over the mangled body of her father (533 B. C.). Such is the history of Servius, as commonly related. But see Niebuhr's *Roman History* (3d ed., 1828), in the chapters On the Legend of Tarquinius Priscus and Servius Tullius, and Critical Examination of the History of Tarquin and Servius.

SERVUS SERVORUM (*servant of servants*); the title which the popes give themselves.

SESAMUM ORIENTALE; a plant, known from a very ancient period, and very interesting on account of the economical purposes to which it is applied. It was originally brought from India, and is said to grow wild in Ceylon, and along the coast of Malabar. It is called *semsem* in Egypt and other parts of the East, where it is cultivated extensively on account of the seeds, and an oil which they yield, not unlike or inferior to the oil of almonds. This plant was introduced into Carolina, from Africa, by the negroes, and succeeds there perfectly. It is called *bene* or *bonny*. The oil will keep many years, does not acquire any rancid smell or taste, but, on the other hand, in two years becomes quite mild, and is a good substitute for olive oil. The negroes use the seeds as an aliment. The sesamum was introduced into Jamaica by the Jews, and is now cultivated in most parts of the island. It is called *vanglo* or *oil plant;* and the seeds are frequently used in broths by many of the Europeans, but the Jews make them chiefly into cakes. In Japan, China, and Cochin-China, where they have no butter, they use the oil for frying fish, and in dressing other dishes, as a varnish, and, medicinally, as a resolvent and emollient. Pliny speaks of this oil as equally good to eat and burn. Nine pounds of the seed yield upwards of two pounds of oil. The plant grows to the height of two feet or more; the stem is upright, herbaceous, hairy, and almost cylindrical; the leaves are oval oblong, the inferior ones opposite, with long leaf-stalks, entire, or with some very distant teeth; the superior, much narrower, entire, acuminate, almost alternate, and nearly sessile: the flowers are solitary, axillary, and the corolla is white, and resembles, in form, that of the foxglove.—*S. indicum* is another species, cultivated in Egypt, and used for the same purposes as the preceding.

SESOSTRIS; a king of Egypt, who by some has been deemed the Shishak of Scripture, but whom Champollion has shown to be a different person. He is called Sethos, and Sethosis, and his royal name is Ramses, or Rameses. He reigned in the fifteenth century B. C. Sesostris was a great conqueror, who overran Asia, and is said to have erected magnificent temples in all the cities of his empire, to have built a great wall on the eastern boundary of Egypt, and to have dug a number of canals from the Nile, for the purposes of commerce and irrigation.

SESSILE; a botanical term, signifying without footstalks.

SESSION, COURT OF, in Scotland, the highest civil judicatory in the kingdom. See *Scotland*, division *Jurisprudence*.

SESSIONS. For the *quarter sessions*, see *Courts*.

SESTERTIUM. See *Sestertius*.

SESTERTIUS; an ancient Roman silver coin, worth two and a half *asses* (hence the name *sesquitertius*, the third half). (See *As*.) In sterling money, the sestertius was about one penny and a quarter; but it was not at all periods precisely the same. The neuter form, *sestertium*, denotes a much larger amount. It generally appears in the plural, and signifies not a real coin, but a sum of 1000 *sestertii*. If the sum amounts to 1,000,000 or more, a numeral in *ies* is connected with *sestertium* (e. g. *quadragies sestertium* is four millions or *sestertii*, i. e. *quadragies centena millia sestertiorum nummorum*). Sometimes the numeral adverb is used alone, and *decies ei dedit* signifies *decies sestertium*, i. e. *decies centena millia sestertiorum*, or a million. The *sestertius* was generally expressed by the letters L. L. S. (i. e. *libra libra semis*); and these letters were contracted into H. S. In common life, it was generally called *nummus* only. (For the manner in which the Romans expressed numerical values, (see *Notation.*) As a weight, a sestertius amounted to about fifteen and three fourths French grains (about 12·91 grains Troy).

SESTETTO; a musical piece for six independent voices, whether instrumental or vocal. The former is particularly used for wind instruments, and often employed for serenades or *notturni.* Moscheles, Beethoven and others have composed *sestettos* for wind and stringed instruments. Vocal *sestettos* are used in operas; and that of Mozart, in the second act of Don Juan, is celebrated.

SESTINA; a lyric form of versification, which comprises six strophes of six lines, and one of three lines. The verse is generally the iambic of five feet. The characteristic of the *sestina* is, that in each of the six strophes the six final words of the first are repeated in such an order that the final word of the sixth verse of the first strophe, becomes the final word of the first verse of the second strophe; the other five verses of the second strophe end with the final words of the five first verses of the first strophe in an arbitrary succession. The third strophe is formed in the same way from the second as this was from the first, and so on; so that each of the six final words is once the first and once the last word in each strophe, and the last verse of the sixth strophe ends with the final word of the first verse of the first strophe. The strophe of three lines, with which the *sestina* ends, repeats the six final words again in the same order as they stand in the first strophe: each verse contains two of them, one in the middle and one at the end. There is no other rhyme in the *sestina.* Petrarca has made successful essays in this form. In general, the Italians, and next to them the Spaniards, have most cultivated it. It has been attempted, also, in German. It can be readily imagined how easily this form leads to an idle play upon words; yet it is astonishing with what skill some poets have contrived to attach different ideas and feelings to the same words.

SESTINI, Domenico, the most learned numismatist of Europe, in regard to ancient coins, as far as the knowledge of them can be acquired by inspection, was born at Florence, in 1750. After having completed his studies at the school of St Marco, he entered the clerical order; but, in 1774, he left his native city, and visited Rome, Naples, and the Sicilies. In order to prosecute his studies with more effect, he went from Sicily, through Malta and Smyrna to Constantinople, where he prepared his observations on the plague, which then prevailed. He made short journeys from Constantinople into Asia and Europe, and lived awhile in the house of prince Ypsilanti, hospodar of Walachia. At length, he went to Vienna, and returned along the Danube and over the Black sea to Constantinople. The British ambassador at the Porte, Sir Robert Ainslie, was then forming a collection of ancient coins. For sixteen years Sestini was his agent, and in the course of his travels collected the celebrated cabinet which he has described in his *Lett. e Dissertazioni numismatiche sopra alcune Medaglie rare della Callezione Ainsliena* (4 vols., 1789—90, 4to.); *Descr. Numor. vett. ex Museis Ainslie, Bellini*, etc., *necnon Animadverss. in Opus Eckhel. Doctrina Numorum vett.* (Leghorn, 1796, 4to.). To gain a thorough knowledge of ancient coins, he travelled through Germany, visited Gotha, Dresden, and Berlin, where he settled, and was appointed, by the king, superintendent of the collection there. In 1810, he went to Paris, where he was elected a corresponding member of the *Académie des Inscriptions et Belles Lettres*, and, two years later, he received the appointment of antiquary and librarian of the princess Eliza, then grand-duchess of Tuscany. When Ferdinand III. ascended the throne, he confirmed him in this office, and added the title of honorary professor of the university of Pisa. In November, 1825, he was living with count Viczay at Hedervan. His principal writings are *Diss. intorno al Virgilio di Aproniano* (Flor., 1774, 4to.); *Della Peste di Constantinopoli del* 1778 (Yverdun [Flor.], 1779, 12mo.); *Lettere Odeporiche, ossia Viaggio per la Penisola di Cizico* (2 vols., Leghorn, 1785); *Viaggio di Constantinopoli a Bassora* (Yverd. [Leghorn], 1786); *Viaggio di Ritorno da Bassora a Constantinopoli* (Leghorn, 1788); *Lettere e Dissertazioni numismatiche*, which appeared at Leghorn, Rome, Berlin, Milan, Pisa, and Florence, from 1789 to 1820, in 18 vols., 4to., with many engravings; the *Descriptio Nummorum veterum ex variis Museis* (Leipsic, 1796, 4to.); the *Catalogus Nummorum veterum Musæi Aragoniani* (Berl., 1805, fol.); the *Descr. selectiorum Numismatum in Ære maximi Moduli Museo olim Ab. de Camps, posteaque Mareschalli d'Etrées*, etc. (Berl., 1808, 4to.); *Descr. delle Medaglie Greche e Romane del fu Benkowitz* (Berl., 1800, 4to.); *Descr. degli Stateri antichi illustr. con le Medaglie* (Flor., 1817); *Diss. sopra le Medaglie antiche relative alla Confederaz. degli Achei* (Milan, 1817, 4to.); and the *Descr. delle Medaglie Ispane appartenenti alla Lusitania Betica e alla Tarragonese del Museo Hedervariano* (Flor., 1818, 4to.). His *Classes generales seu Moneta vetus Urbium, Populorum et Regum Ordine Geographico et Chronologico descr.* (Flor., 1821, 4to., 2d ed.), may serve, in many respects, as a general index to all these works. There is but little prospect that his *Systema geographicum Numismaticum* (written by his own hand, in 16 vols., folio), the fruit of fifty years of study and investigation, will be given to the world.

SESTOS; a fortress of European Turkey, opposite to Abydos, from which it is 2700 yards distant. The castles of the Dardanelles, sometimes called the *Sestos* and *Abydos*, are built near the sites of the ancient towns so called, famous for the loves of Leander and Hero.

SET-OFF, in law, is when the defendant acknowledges the justice of the plaintiff's demand on the one hand, but on the other sets up a demand of his own, to counterbalance that of the plaintiff, either in the whole or in part; as if the plaintiff sue for 100 dollars due on a note of hand, the defendant may set off 90 dollars to himself for merchandise sold to the plaintiff, or for any other demand, the amount of which is ascertained in damages.

SETTLE, Elkanah, an English poet, was born in 1648. At the age of eighteen, he entered at Oxford, but quitted the university without taking a degree, and, going to London, commenced author by profession. He wrote numerous political pamphlets, and, in reply to Dryden's poem entitled the Medal, occasioned by the whig party striking a medal to commemorate the throwing out of the bill against the earl of Shaftesbury, a piece called the Medal Reversed; and, soon after, a poem entitled Azaria and Hushai, designed as an answer to the Absalom and Achitophel. In 1685, he published a poem on the coronation of James II., and, about the same time, obtained a pension from the city, for writing an annual inauguration panegyric, on lord mayor's day. Settle was, besides, an indefatigable writer for the stage, and produced fifteen dramatic pieces, none of which are now known on the boards. In the decline of life, he received a salary from the proprietor of a booth at Bartholomew fair, as a writer of "Drolls," which were generally very successful, and is said to have been, at that time, the best contriver of theatrical machinery in the kingdom. He died at the Charterhouse, in 1724.

SETTLEMENT, ACT OF; a name given to a statute 12 and 13 William III., cap. 2, by which the crown was limited to the present reigning house in Britain, and by which some new provisions were added in favour of the subject, securing his liberty and the rights of conscience.

SETUVAL, OR STUBES; a town of Portugal, in Estremadura; fifteen miles south-east of Lisbon; lon. 8° 54′ W.; lat. 38° 29′ N.; population 14,876. It is situated in a bay of the Atlantic, at the mouth of the river Sandao, with a good harbour, capable of receiving ships of any burden, and exports lemons, olives, oil, wine, and, above all, bay salt, of which no less than 200,000 tons are annually made here. The streets are paved, and the town is fortified with a mound, a citadel, and several small forts. Setuval contains five churches, one hospital, eleven convents, and an *academia problematica.*

SEUME, JOHN GOTTLIEB, known for his writings and his adventures, a man of a vigorous mind, but eccentric disposition, was born at Poserne, in 1763. He was left an orphan, but was placed, by a charitable person, at the Nicolai school in Leipsic. Here he began the study of theology; but, becoming discontented, he set off secretly for Paris. On his way, he was forced to join the Hessian troops then raising to serve in America (1781). After his return, he was obliged to enter the Prussian service, but at length studied at the university of Leipsic, and, in 1793, became secretary of the Russian general at Warsaw. He soon after returned to Leipsic, where he published several works, and was employed as a corrector of the press. In 1801, he set out on a pedestrian excursion through Austria, Italy and France, and, on his return, published an account of his tour, under the title of Walk to Syracuse (in German). In 1805, he undertook a similar expedition into Russia, Sweden, &c., which is described in My Summer of 1805 (2d ed., 1815). He died at Teplitz, in 1810. His autobiography, which he left unfinished, was completed by Clodius, and is contained in the edition of his works in twelve volumes (Leipsic, 1826, seq.).

SEVEN ISLANDS. See *Ionian Islands.*

SEVEN LIBERAL ARTS. See *Arts.*

SEVENNES. See *Cevennes.*

SEVEN SLEEPERS. There is an old story that Epimenides of Crete reappeared in the world, after sleeping forty years in a cave (see *Epimenides*); and all our readers are acquainted with the veracious legend of Rip Van Winkle, as related in the Sketch-Book of Geoffrey Crayon; but the slumber of the seven sleepers was of longer duration. In the time of the emperor Decius, when the Christians were persecuted, seven noble youths of Ephesus concealed themselves in a neighbouring cavern, the entrance of which was closed by order of the emperor. The persecuted youths immediately fell into a deep slumber, from which they were accidentally awakened in the reign of Theodosius II., after a period of 187 years. Pressed with hunger, after their long fast, they sent one of their number to the city to purchase bread. He was astonished to see crosses erected all over the city; and his own antiquated dress and obsolete language confounded the baker, to whom he offered an old medal in payment for bread. Suspected of having found a secret treasure, he was carried before the judge, to whom he related his miraculous story. The bishop of Ephesus, the magistrates, and the emperor himself, hastened to the cave, and found the sleepers still bearing the bloom of youth. They related their story to the multitude, gave them their benediction, and expired. The church has consecrated the 27th of June to their memory. (See the *Acta Sanctorum* of the Bollandists, tom. vi, 375—397.) This legend has not been confined to the Christian world. The Koran relates the tale of the seven sleepers, to whom it assigns a dog (Al Rakim), and out of respect for whom it declares that the sun altered his course twice a day, that he might shine into the cavern. The Mohammedan and Christian story are probably both derived from the same source.

SEVEN STARS. See *Pleiades.*

SEVENTH DAY BAPTISTS. See *Baptists.*

SEVEN WISE MEN, OR SEVEN SAGES OF GREECE. This name is commonly applied to seven philosophers, several of whom were legislators, of an early period of Grecian history. They were Periander of Corinth (in place of whom some give Epimenides of Crete), Pittacus of Mitylene, Thales, Solon, Bias, Chilo, and Cleobulus. See *Greece,* division *Greek Literature.*

SEVEN WONDERS OF THE WORLD; seven monuments, remarkable for their splendour or magnitude. They are the pyramids of Egypt (instead of which some name the Pharos of Alexandria), the walls and hanging gardens of Babylon, the temple of Diana at Ephesus, the statue of the Olympian Jupiter (see *Phidias*), the Mausoleum (see *Artemisia,* and *Mausoleum*), and the colossus of Rhodes (see *Colossus*). These are not, however, to be considered the greatest works of ancient art and taste. This group of the seven wonders originated among the Greeks in the time of Alexander. Philo the Byzantine has described them in his work *De septem Orbis Spectaculis* (late edition, Leipsic, 1816).

SEVEN YEARS' WAR. By the treaties of peace concluded at Breslau, July 28, 1742, and at Dresden, December, 25, 1745, Maria Theresa of Austria ceded to king Frederic II., six principalities of Silesia and the county of Glatz. The loss of these fine territories was too painful for her not to think of recovering them. For this purpose, she concluded an alliance with Elizabeth, the empress of Russia, and personal enemy of Frederic, brought over to her cause the king of Poland and the elector of Saxony, Augustus III., and attempted to form a closer union with France, notwithstanding the enmity that had existed between that kingdom and her own for centuries. While Maria Theresa was occupied in these projects, a dispute had arisen between Britain and France, relating to the boundary between their possessions in America, which broke out, in 1755, into open hostilities. To protect his German states against an attack from France, the king of England concluded an alliance with Prussia; and, some months after, France made a league with the court of Vienna, promising to furnish 24,000 auxiliary troops against Prussia. But these auxiliaries were afterwards increased to 180,000; for it was rather the design of France to injure the king of England by conquering Hanover, than to aid in accomplishing the ambitious designs of the empress on Silesia. By means of Menzel, a clerk in the Saxon cabinet, all the proceedings of the Russian, Austrian and Saxon courts were discovered to Malzahn, the Prussian ambassador in Dresden, and Frederic II., accordingly prepared himself for war. He demanded an explanation from the court of Vienna, received an equivocal answer, and resolved to anticipate his enemies. In August, 1756, therefore, he invaded Saxony with 60,000 men, in three divisions, invested Dresden, took possession of the documents necessary to justify his conduct, which he found in the archives of the cabinet there, and invested the Saxon army of 15,000 men in their fortified camp at Pirna. Meanwhile, field-marshal Brown advanced from Bohemia with an army to liberate Saxony. Frederic, leaving troops sufficient to maintain the siege of the Saxon camp, marched to Bohemia to meet the Austrians, and engaged them, October 1, at Lowositz. The battle, though not decisive, prevented the field-marshal from aiding the Saxons. They were forced to surrender as prisoners of war, and the inferior officers and common soldiers were compelled to enter the Prussian service; but they soon deserted, both singly and in whole regiments, because they would not fight against their own sovereign. Such was the end of the first campaign; and the Prussians remained through the winter in Saxony and Silesia. Frederic's invasion of Saxony excited a general commotion in the courts of Europe. It was pronounced to be a violation of the treaty of Westphalia, and France, as one of the guarantees of that treaty, now took part in the struggle. Sweden, too, for the same reason, and Russia, on account of her alliance with the empress, adopted a similar course. In the diet at Ratisbon, war was declared on the part of the empire against Prussia. Thus in 1757, Austria, Russia, France, Sweden, and the German empire, were in arms against Frederic, while he had no ally but England; and, in a war by land but little aid was to be expected from her. In order to anticipate his enemies, Frederic marched into Bohemia with four armies in April, 1757, and May 6, a bloody battle was fought at Prague, in which the Prussians conquered, but lost their distinguished general Schwerin. The greatest part of the vanquished Austrian army threw itself into the city of Prague, to which the king immediately laid siege. Field-marshal Daun, who was stationed on the heights of Colin with 60,000 Austrians, received orders to hazard a decisive action for the relief of Prague. To prevent this, Frederic advanced to Colin (q. v.), attacked the enemy with 24,000 men, lost the battle, and 8—14,000 brave soldiers, and was forced to raise the siege of Prague, and to retreat to Saxony and Lusatia. He effected his retreat from Bohemia without further loss. Meanwhile, the French had taken possession of Wesel, the principalities of Cleve and East Friesland, the territories of Hesse-Cassel and Hanover, and laid them under contribution. The duke of Cumberland, who commanded the forces of the German states, allied with Prussia, namely, Hanover, Hesse, Brunswick, Gotha and Bückeburg, 40,000 men, to whom were opposed 100,000 French, was defeated at Hastenbeck, July 26, and driven back to Stade, and concluded a capitulation, September 8, at Kloster-Seven (which, however, was never carried into execution), by the terms of which all the above-mentioned troops, except those of Hanover, were to be disbanded. A French army under the prince de Soubise, with the imperial forces, 15,000 men strong, under the prince of Hildburghausen, now menaced Saxony, and the hereditary states of Frederic, who, therefore, left the duke of Bevern in Silesia, marched to Thuringia, and drove the French from Erfurt. On receiving information that an Austrian army, under Haddick, had invaded the Mark, Frederic hastened back to Torgau. But, as the Austrians soon retreated, and the French advanced anew, he marched against the latter, and fought at Rossbach (q. v.), November 5, that memorable battle, in which both the French and the imperial armies were defeated, and found safety only in a hasty flight. They went into winter-quarters at a distance, and the possession of Saxony was secured to the king. Upon this, Frederic hurried back to Silesia, where Schweidnitz and Breslau had fallen into the hands of the Austrians. With a small army, fatigued with a long march, he defeated, December 5, at Leuthen (q. v.), a force twice as great, under Daun. Breslau surrendered fourteen days after, with a numerous garrison, and a large quantity of stores, and, soon after, Leignitz also. In these actions the Austrians lost upwards of 40,000 men. Silesia was again torn from them, and Frederic was now more formidable to his foes than ever. The Russians marched into Prussia, in June, 100,000 men strong, laid waste the country in a barbarous manner, maltreated the inhabitants, defeated field-marshal Lehwald, August 30, at Grossjägerndorf, with his army of 24,000 men, and then returned, destroying all before them. The Swedes in September, occupied Anklam, Demmin and Pasewalk; but, in a few weeks, they were defeated by Lehwald, and driven to Rügen. The third campaign was opened in February, 1758, by Ferdinand, duke of Brunswick, who was now at the head of the allied armies, in the room of the duke of Cumberland, and opposed the French in Lower Saxony and Westphalia. His nephew, the hereditary prince, afterwards duke of Brunswick, Charles William Ferdinand, commanded under him. Duke Ferdinand made himself master of the Weser, expelled the French, under Clermont, from Lower Saxony and Westphalia, and defeated them, June 23, at Crefeld. He then returned over the Rhine to Hesse, where Soubise was stationed with a French army, and whither Clermont followed him. Ferdinand, in the meanwhile strengthened by 12,000 British troops, forced the two hostile bodies to retire over the Maine and the Rhine, where they went into winter-quarters. In the winter of 1758, after the Austrians had been driven from Silesia, and Schweidnitz recovered, Frederic marched into Moravia, and in May commenced the siege of Olmutz; but, when Daun arrived, in July, he was forced to raise the siege, with the loss of a large stock of provisions and ammunition. The Russians, after having driven back the few Prussian troops, marched into Neumark, and Frederic hastened with a body of soldiers to protect his hereditary states. He came up with the Russian army, 50,000 men strong, who were besieging Custrin, attacked them at Zorndorf, August 26, with 30,000 men, defeated them after a bloody engagement, and forced the Russians to retreat to Poland. After this, he again turned his attention to Saxony, where his brother prince Henry was no longer able to resist the Austrians. He encamped at Hochkirch, where he was attacked in the night of October 14, and suffered a total defeat. Soon after, in Silesia, Frederic compelled the Austrians to raise the siege of Neisse; he then hastened to Saxony, and drove field-marshal Daun, who was besieging Dresden, back to Bohemia. At the close of the campaign, the king saw all his estates, except the kingdom of Prussia, free from the enemy. In France, there was a general wish for peace; but Louis XV., and his mistress, the marchioness de Pompadour, were bent on continuing the war. A new alliance was, therefore, concluded with Austria, December 30, 1758, and the same month a treaty was also entered into between Britain and Prussia, in which Frederic was promised a yearly subsidy. Prince Henry marched into Bohemia, notwithstanding the severity of the winter; the hostile troops were dispersed, a corps of 2500 men was taken by general Hülsen, and an immense booty. The inactive imperial forces, in Franconia, prince Henry put to flight. Contributions were levied by the Prussians on Bamberg, Erfurt and Würtzburg. Another body of Prussians invaded the duchy of Mecklenburg-Schwerin, which was compelled to furnish large quantities of military stores, besides 16,000 recruits, in the course of the war, and to pay several million dollars, in consequence of the policy of their sovereign, who first gave his vote to have Frederic II. treated as an enemy of the empire. The allies under Ferdinand of Brunswick, could effect but little at the beginning of the campaign of 1759. The French had taken Frankfort on the Maine by surprise, during the winter, and the plan for recovering the city was frustrated by the failure of the attack on Bergen, April 13. But, Aug. 1, Ferdinand gained a splendid victory at Minden over the French troops under Contades and Broglio. On the same day, the hereditary prince of Brunswick likewise defeated the French at Gohfeld, and they were driven over the Lahn on one side, and over the Rhine on the other. But general Wedel, who undertook to resist the progress of the Russians, was defeated at Kay, near Züllichau, in the Neumark, by general Soltikoff, and Frederic hastened from Silesia to defend his electoral territories from the danger which hung over them. Aug. 12, he attacked the Russians at Kunersdorf (q. v.), not far from Frankfort, and had already defeated them, and even despatched messengers from the field with the news of his victory, when Laudon, who had previously joined the Russians with 18,000 Austrians, deprived him of his expected success. The Russians purchased their victory dearly, but they made no use of it. Frederic's position was extremely dangerous; indeed, he began to apprehend an unfortunate issue of the war. The Russians were victorious in his hereditary states; Daun was in Lusatia with a large army, and Saxony was overrun by the imperial troops. The Austrians and Russians wished to unite; but prince Henry deprived the former of their magazines, and thus obliged them to retreat; and Frederic anticipated the Russians in their march to Silesia, and compelled them to retire to Poland. In Saxony, the king experienced a new misfortune. General Fink, a brave commander, was forced to surrender, at Maxen, Nov. 21, with 11,000 men and a large number of cannon, to the Austrians. But, notwithstanding all these mishaps, at the close of the campaign, the enemy were nearly every where driven back; only Daun remained in Saxony, where he had occupied Dresden. The Swedes, also, who, after the battle of Kunersdorf, when Prussian Pomerania was destitute of troops, invaded that country, were driven by Manteufel and Platen under the cannon of Stralsund. The campaign of 1760 seemed, at first, to forebode ill success to Frederic. The brave general Fouquet was taken at Landshut, with 8000 Prussians; the king was forced to raise, July 30, the seige of Dresden, which he had commenced on the 14th; Glatz had gone over to the Austrians, and Frederic was obliged to March into Silesia for its protection. With 30,000 Prussians he entrenched himself at Liegnitz; the hostile troops, under Daun and Laudon, were more than 100,000 strong, and threatened an attack. But Laudon was defeated, Aug. 15, at Liegnitz, and Daun was unable to afford him any assistance. The Austrians lost 10,000 men in killed, wounded and prisoners, 23 standards and 82 pieces of cannon. Frederic's loss was 1800 killed and wounded. Meanwhile, a corps of Russians and Austrians had advanced to Berlin, and levied contributions on the people. Frederic hastened thither to cut off the enemy; but, not finding them there, he returned to Saxony, where the imperial forces were stationed, and Daun and Lascy had united. At Torgau he attacked the enemy, Nov. 3, defeated them in a bloody engagement, which was gained chiefly by the sagacity and courage of Ziethen and Möllendorf, and then went into winter-quarters in Saxony. Laudon, also, was driven back in Silesia to the county of Glatz, and the Russians were forced to raise the seige of Colberg and to retire to Poland. The allied forces, under Ferdinand of Brunswick, defeated the French, July 31, at Marburg; but the latter remained in Hesse, where they had extensive magazines. February 11, 1761, Ferdinand attacked the French in their quarters; they fled, and many of their fortifications and magazines fell into the hands of the conquerors. A corps of French and Saxon troops was defeated, February 14, at Langensalza; but the allies were obliged to raise the siege of Ziegenhain, Marburg and Cassel, with loss, and the French once more became masters of all Hesse, and had an unobstructed passage to Hanover. The people all wished for peace; but not so their rulers, except the king of Prussia. Maria Theresa would not now be satisfied merely with the restoration of Silesia. The empress Elizabeth was desirous of retaining Prussia, and the French minister Choiseul sought to revenge himself for a poetical epistle, in which Frederic had satirised him, by protracting the war. The proposals of peace made by Britain and Prussia, were not accepted, and Frederic endeavoured to protect Silesia against the Austrians and Russians, who had united, in August, at Striegau. The king maintained his camp at Schweidnitz against a much superior force, and the greatest part of the Russians were obliged to retire to Poland, for want of provisions. Laudon surprised Schweidnitz October 1. A garrison of 3700 men, several magazines, and a large quantity of military stores, fell into the hands of the Austrians. Prince Henry, in Saxony, was also reduced to great straits by Daun. In Pomerania, detached bodies of the Prussians were defeated by the Russians, and after a brave resistance, December 16, they lost the fortress of Colberg. The Swedes, on the contrary, were driven back to Stralsund; and, July 15, Ferdinand, duke of Brunswick, gained a brilliant victory at Billingshausen over the French; but the triumph was of little importance. Frederic felt himself in a desperate condition, and, in consequence of all these misfortunes and the superior strength of his enemies, seemed to be verging to his ruin. But, January 5, 1762, Elizabeth, the empress of Russia, died; and her successor, Peter III., the personal friend and admirer of Frederic, concluded an armistice with him, March 16, 1762; which was followed, May 5, by the peace of Petersburg. Sweden, likewise, made peace with Prussia; and, as Peter's intercession with Austria was ineffectual, the Russian emperor sent a body of troops to aid the Prussians. But the emperor's early death soon broke the alliance with Frederic, and his successor, Catharine II., recalled the Russian troops, amounting to 20,000 men, from the Prussian service. Frederic, however, was delivered from one dangerous enemy, and had gained an important preponderance of strength over the rest. He now drove an Austrian corps from their entrenchments at Burkersdorf, recovered Schweidnitz in October, left the duke of Bevern with an army for the defence of Silesia, and marched to Saxony. After several successful engagements, prince Henry gained, October 29, an important victory over the Austrian and the imperial troops at Freiberg, and the king now concluded an armistice with the Austrians; but it related only to Saxony and Silesia. Under duke Ferdinand and the hereditary prince of Brunswick, the allies commenced, unsuccessfully, the campaign of 1762 against the French; but the latter were defeated, June 24, at Wilhelmsthal, driven from their fortified camp at Cassel and extremely weakened. Cassel itself was besieged, and, Nov. 1, surrendered to the allies. Two days after this, the preliminaries of peace between Britain and France were signed, and the peace itself was confirmed at Paris, February 10, 1763. (See *Paris, Treaties concluded at.*) Frederic was thus exposed alone to his enemies; but he had already acquired a decided superiority. A Prussian force, under Kleist, also obliged several of the most important states of the empire to declare themselves neutral. After a short negotiation, and without the aid of foreign mediation, Frederic concluded a peace with Austria and Saxony at Hubertsburg, February 15, by which each power received again all the territories which it had possessed before the war, though in a miserable condition. The unity of purpose, which marked all the measures of Frederic, and the great supplies both of men and money, which he obtained from the conquest of Saxony, his comprehensive genius, his numerous and excellent generals, and the bravery of his troops, gave the Prussian monarch a superiority over his enemies, and brought to a happy conclusion a war which had made the Prussian kingdom more than once tremble on the brink of destruction. This war cost Europe a million lives, and exhausted all the states which took part in it, without having procured to any but Britain the smallest advantage. See *Hist. de la Guerre de sept Ans,* in the posthumous works of Frederic II.; *History of the Seven Years' War,* by Lloyd and Tempelhof; Ratzow's *Charakteristick der merkwürd, &c.;* the *Geständnisse eines Oestreich. Veterans* [Confessions of an Austrian Veteran], by Kuniaczo; and lord Dover's *Life of Frederic II.* (London, 1832).

SEVENTY, THE. See *Septuagint.*

SEVERIANS, SEVERITES. See *Gnostics,* and *Monophysites.*

SEVERN (anciently Sabrina); a river which rises near Plinlimmon hill, North Wales, passes by Shrewsbury, Worcester, Upton, Tewksbury, and Gloucester, and, entering the sea, its mouth is called *Bristol Channel.* A communication between this river and the Thames, the Trent, the Dee, and the Mersey and other rivers, has been opened by different canals; length of its course to the sea, about 200 miles.

SEVERUS, ALEXANDER. See *Alexander Severus.*

SEVERUS, LUCIUS SEPTIMIUS; a Roman emperor, born at Leptis, in Africa, of a noble family. He successively exercised all the offices of the state, and recommended himself to notice by an ambitious mind and a restless activity, that, for the gratification of avarice, could endure the greatest hardships. After the murder of Pertinax, Severus resolved to remove Didius Julianus, who had bought the imperial purple when exposed to sale by the pretorians (q. v.), and proclaimed himself emperor on the borders of Illyricum, where he was stationed against the barbarians. To support himself, he took, as his partner in the empire, Albinus, who was at the head of the Roman forces in Britain, and immediately marched towards Rome to crush Didius and his partisans. He was received with acclamation; and Julian was deserted by his favourites, and assassinated by his own soldiers. In professing that he had assumed the purple only to revenge the death of the virtuous Pertinax, Severus gained many adherents, and was enabled to banish the pretorians, whose insolence and avarice had become alarming, not only to the citizens, but to the emperor. But while he was victorious at Rome, Pescennius Niger was in the East, at the head of a powerful army, and with the name and ensigns of Augustus. Many obstinate battles were fought between the imperial rivals, till, on the plains of Issus, Niger was totally ruined by the loss of 20,000 men. The head of Niger was cut off and sent to the conqueror, who punished, in a most cruel manner, the partisans of his unfortunate rival. Severus afterwards pillaged Byzantium, which had shut her gates against him; and after he had conquered several nations in the East, he returned to Rome, resolved to destroy Albinus, with whom he had hitherto reluctantly shared the imperial power. He attempted to assassinate him by his emissaries; but when this had failed of success, Severus had recourse to arms, and the fate of the empire was again decided on the plains of Gaul. Albinus was defeated, and the conqueror insulted the dead body of his rival, and ordered it to be thrown into the Rhone, after he had suffered it to putrefy before the door of his tent, and to be torn by his dogs. The adherents of Albinus shared his fate; and the return of Severus to the capital exhibited the bloody triumphs of Marius and Sylla. The richest of the citizens were sacrificed, and their money became the property of the emperor. Commodus received divine honours, and his murderers were punished in the most wanton manner. Tired of the inactive life he led in Rome, Severus marched into the East with his two sons Caracalla and Geta; made himself master of Seleucia, Babylon, and Ctesiphon; and advanced far into the Parthian territories. From Parthia, he marched towards the more southern provinces of Asia, and, after he had visited the tomb of Pompey the Great, entered Alexandria. The revolt of Britain recalled him from the East. After he had reduced it under his power, he built a wall across the northern parts of the island to defend it against the frequent invasions of the Caledonians. Hitherto successful against his enemies, Severus now found the peace of his family disturbed. Caracalla attempted to murder his father, as he was concluding a treaty of peace with the Britons; and Severus, worn out with infirmities, which the gout and the uneasiness of his mind increased, soon after died at York, A. D. 211, in the sixty-sixth year of his age. Severus has been so much admired for his military talents, that some have called him the most warlike of the Roman emperors. As a monarch, he was cruel; and it has been observed that he never did an act of humanity or forgave a fault. In his diet, he was temperate, and he always showed himself an enemy to pomp and splendour. He loved the appellation of a man of letters, and he even composed a history of his own reign.

SEVIGNE, Marie de Rabutin, Marquise de, a French woman of quality, greatly distinguished for her epistolary talents, was born in 1627. Her father, the baron of Chantal, who was the head of the house of Bussy Rabutin, left her, during infancy, his sole heiress. The graces of her person and conversation procured her many admirers; and in 1644, she married the marquis de Sévigné, who was killed in a duel in 1651, leaving her the mother of a son and daughter. She formed no second union, but devoted herself to the education of her children, and to the cultivation of her mind, by reading and literary society. She was extremely attached to her daughter, who, in 1669, married the count de Grignan, and accompanied him to his government of Provence. The absence of her daughter from the metropolis gave rise to the greater part of the Letters which have gained madame de Sévigné so much reputation. The subjects of many of these epistles are so entirely domestic as to produce little interest; but others abound with court anecdotes, remarks on men and books, and the topics of the day, which are conveyed with great ease and felicity. They are models of the epistolary style, perfectly natural from their expression, lively sentiment and description, and a playfulness which gives grace and interest to trifles. In her letters to her daughter, the reader is sometimes wearied with an excess of flattery of her beauty and talents, the preservation of the former of which seems to have formed the principal object of her maternal anxiety. In fact, although endowed with abilities and penetration, she did not rise much above the level of her age in taste and principles. She was highly attached to rank and splendour, loved admiration, and felt the usual predilection of high life for manners and accomplishments in preference to solid worth. She had a strong feeling of religion, but was often inconsistent in her sense of it, and in reference to the proceedings against the French Protestants, expresses herself with bigotry and want of feeling. The most complete edition of her Letters is that which appeared at Paris in 1818 (11 vols., 8vo.) An English translation was published in London about 1758. She died in 1696, at the age of seventy.

SEVILLE, SEVILLA (anciently Hispalis); a city of Spain, in Andalusia, on the Guadalquivir, capital of a province of the same name, forty-five miles north of Cadiz, 250 south-west of Madrid; lon. 5° 39′ W.; lat. 37° 24′ N.; population, 94,000. It is an archiepiscopal see, and stands in a fine plain, surrounded by an old wall, built of cement, with twelve gates, and 166 turrets. The interior of the city is built in the Moorish style, the streets being often so narrow that a person can touch the houses on both sides at once; and it is badly paved. The squares are neither numerous nor spacious. There are several beautiful public walks, one, in particular, on the banks of the Guadalquivir. The city contains a cathedral, twenty-nine churches, eighty-four convents, and twenty-four hospitals. The cathedral is the largest Gothic edifice in Spain, and one of the largest churches in Europe. It was built in the fifteenth century, contains eighty-two altars, and has a tower 250 feet high, considered the finest in Spain. Other conspicuous edifices are the alcazar, or palace, a Moorish building, containing a library of 20,000 volumes, a garden, &c.; the longa or exchange, the artillery school, and the mint. The houses generally cover a large space, but towards the street they have often a mean appearance, the Moors being accustomed to confine their embellishments to the interior. Seville contains an academy for the physical sciences, one for the fine arts, a medical society, and a university, founded in 1502, almost as backward as at the time of its foundation. The silk manufactures of Seville were formerly extensive. In the time of Ferdinand and Isabella, it is said there were 6000 looms. These manufactures declined in the middle and end of the seventeenth century, but revived again in the eighteenth, and between 2000 and 3000 looms are now employed. Other manufactures are coarse woollens, leather, tobacco, and snuff. Vessels drawing more than ten feet of water must unload eight miles below the city, and the largest vessels stop at St Lucar, at the mouth of the river. Seville is one of the most ancient cities of Spain; by the Romans called *Hispalis;* by the Goths *Hispalia;* by the Arabians *Ixbilla;* hence, by the Castilians *Sevilla.* It was the residence of the Gothic kings before they moved to Toledo. Ferdinand III., king of Castile, after a year's siege, forced Seville to open its gates to him. At this time it is said to have contained 600,000 inhabitants; and upon the capitulation 300,000 Moors abandoned the city. After the discovery of America, it became the centre of the commerce of the new world, and was very flourishing; but the difficulty in navigating the river, and the superior advantages of the port of Cadiz, induced the government to order the galleons to be stationed at the latter place.

SEVRES; a village, with 2700 inhabitants, about half way between Paris and Versailles (two leagues from each), lying near St Cloud, on the Seine. It is celebrated for its glass and porcelain manufactories. The porcelain of Sevres is unrivalled for brilliancy of colour and delicacy of execution. The finest specimens are made for the court, and are annually exhibited at Christmas in the halls of the Louvre, with the products of the Gobelin looms See *Porcelain*, and *Pottery*.

SEWARD, Anna, daughter of Thomas Seward, rector of Eyam, Derbyshire, and canon residentiary of Lichfield, was born at Eyam, in 1747, and in childhood exhibited a taste for poetical composition, which was rather checked than encouraged by her father. Miss Seward's first separate publication was an Elegy on the Death of Captain Cook, with an Ode to the Sun (1780, 4to.); and this was followed by a Monody on Major André, with Letters to her from Major André, written in 1769 (1781, 4to.), and Louisa, a Poetical Novel, in four Epistles (1784, 4to.) In 1799, she published a collection of sonnets; and in 1804, appeared her Life of Doctor Darwin. She died at the Episcopal palace at Lichfield, in 1809. Her correspondence was published, with a biographical memoir, in 6 vols., 8vo.

SEX is the term used to designate the two divisions of all organic bodies into male and female. It is a law of nature, that all organic bodies shall be produced by their like, and each class is endowed with particular organs appropriated to this service, which constitute the distinction of sexes. In the vegetable world, the sexes are, for the most part, united in one bud; although, in many classes, they are distributed in different flowers upon the same plant, or upon different plants. Among animals, especially the more perfectly formed, the division of the sexes is complete. In general, the male sex, in comparison with the female, is stronger; the female more delicate and tender. The fundamental characters of the two sexes appear more or less distinctly in most kinds of living beings, till in man they are found in a degree of development corresponding to his rank in creation. The muscular system of man is firmer and more powerful; his chest wider, his lungs more capacious and stronger; the outlines of his form are more distinct, and his whole frame larger and stronger. The female form is more slender; the bones are smaller and softer; the flesh less solid; the chest narrower; the lungs smaller; the heart and arterial system weaker: on the other hand, the venous and lymphatic systems predominate (thus inclining the person to delicacy and inactivity); the space between the skin and the interior parts is more loaded with fat; and thus the contour is more rounded, forming the waving line; the whole proportion, in fine, of the body smaller, and more delicate. Hence the form of man conveys the idea of strength; the form of woman, that of beauty. Man is more active, grasping distant objects; more inclined to effort, to occupy his faculties upon abstract subjects, and extensive plans. The quick and violent passions belong to the man; the quiet, the domestic, and the retiring, to woman. The woman is confined to a smaller circle, with which, however, she is more thoroughly acquainted; and is more patient and enduring in the performance of the ordinary duties of life. Man must acquire; woman strives to keep: man strives to effect his object by force; woman by kindness or by cunning. The one is busied with the bustle of out-door life, the other is devoted to domestic quiet. Man labours in the sweat of his brow, and, exhausted by his efforts, requires deep repose; woman is always busy in a quiet activity.

SEXAGESIMALS, OR SEXAGESIMAL FRACTIONS; fractions whose denominators proceed in a sexagecuple ratio, that is, a prime, or the first minute, $= \frac{1}{60}$; a second $= \frac{1}{3600}$; a third $= \frac{1}{21600}$. Anciently there were no other than sexagesimals used in astronomy; and they are still retained in many cases, though decimal arithmetic has now grown into use in astronomical calculations. In these fractions, which some call *astronomical fractions*, the denominator, being always sixty, or a multiple thereof, is usually omitted, and the numerator only written down, thus, $4^{\circ}\ 59'\ 32''\ 50'''\ 16''''$ is to be read, four degrees, fifty-nine minutes, thirty-two seconds, fifty thirds, sixteen fourths, &c. It is readily seen how great the advantage of the decimal division (according to which the circle has 400 degrees, each degree 100 minutes, each minute 100 seconds, &c.) is over the sexagesimal division; but as this change was one of the effects which the revolution produced in France, the sexagesimal division gained ground again under the elder line of the Bourbons. Biot often expresses the results of his calculations according to both divisions; and to show how different the expressions are, we will only state that the sun's parallax is, according to the sexagesimal division, $= 8''$, 8....., and according to the centesimal (less properly called *decimal)*, $27''$, 1.....

SEXTANT; an instrument for taking altitudes and other angular distances. It is constructed on a principle similar to the quadrant; but the arc, containing a sixth part of a circle, may be taken to 120° Sextants are generally fitted with apparatuses for ascertaining the angular distances, &c., in lunar observations.

SEXTUS (surnamed *Empiricus*, from his belonging to the empiric school of medicine) was a celebrated sceptic, who flourished towards the close of the second century. He was probably a Greek by birth, studied at Alexandria and Athens, became a pupil of the sceptic philosopher Herodotus of Tarsus, and combined extensive learning with great acuteness. Scepticism appears in his writings in the most perfect state which it had reached in ancient times; and its object and method are more clearly developed than they had been by his predecessors. (See *Scepticism.*) He is often sophistical in the application of his sceptical principles. We have two works by him, written in the Greek language, and which are the source of our knowledge of the Greek sceptical philosophy. One of them, entitled Institutes of Pyrrhonism (in three books), explains the method of Pyrrho (q. v.); the other, entitled Against the Mathematicians, is an attempt to apply that method to all the prevailing philosophical systems, and other branches of knowledge. Fabricius edited both works (*Sexti Empirici Opera, Gr. et Lat.*, Leipsic, 1718).

SEXUAL SYSTEM. See *Botany.*

SEYD, OR ZEID; the name of a slave of Mohammed, who was one of the first to acknowledge the divine mission of his master, was adopted by him, and received Zeinab, a cousin of Mohammed, as his wife; the prophet, however, having fallen in love with her himself, Seyd was ready to resign her. Voltaire, in his *Mahomet*, makes Seyd an innocent but blindly submissive youth, who, at the prophet's order, kills a person, who turns out to be his own father. *Seyd* is therefore sometimes used to denote a man blindly devoted to the will of another. Thus St Just is called by Mr Nodier the Seyd of Robespierre; and the duke of Rovigo says in his Memoirs, that he has often been taken for the Seyd of Napoleon.

SEYMOUR, EDWARD; duke of Somerset in the reign of Edward VI., to whom he was maternal uncle, being the son of sir John Seymour, of Wolfhall, in Wiltshire, and brother of lady Jane Seymour, the third wife of Henry VIII. He was educated at Oxford, and early devoted himself to the military profession. On the marriage of his sister with the king, in 1536, he was raised to the peerage, by the title of viscount Beauchamp, and the following year created earl of Hertford. He commanded in a maritime expedition against the Scots, in 1544, when he landed a body of troops at Leith, and set fire to the city of Edinburgh. On the death of Henry VIII., he rose to unbounded power, both in the church and state. By the will of Henry he had been nominated one of the council of regency, during the minority of Edward VI. (q. v.); but, not content with his share of power, he procured himself to be appointed governor of the king and protector of the kingdom. In 1548, he obtained the post of lord treasurer, was created duke of Somerset, and made earl marshal. The same year he headed an army, with which he invaded Scotland, and, after having gained the victory of Musselburgh, returned in triumph to England. His success excited the jealousy of the earl of Warwick and others, who procured his confinement in the Tower, in October, 1549, on the charge of arbitrary conduct and injustice; and he was deprived of his offices, and heavily fined. But he soon after obtained a full pardon from the king, was admitted at court, and ostensibly reconciled to his adversary, lord Warwick (see *Dudley, John)*, whose son espoused one of his daughters. The reconciliation was probably insincere, as Warwick, who had succeeded to his influence over the young king, caused Somerset to be again arrested, in October, 1551, on the charge of treasonable designs against the lives of some of the privy counsellors. He was tried, found guilty, and beheaded on Tower-hill, in 1552.

SEYMOUR, JANE. See *Henry VIII.*

SFORZA; a celebrated Italian house, which played an important part in the fifteenth and sixteenth centuries, gave six sovereigns to Milan, and formed alliances with most of the princely houses of Europe. The founder of the house was a peasant of Cotignola, in Romagna, Giacomo Attendolo, whose skill and courage as a statesman and a warrior made him one of the most powerful *condottieri* of Italy. As he was one day labouring in the field, he was attracted by the sight of some mercenaries, and, throwing his axe against a tree, determined to become a soldier if it stuck in the tree, and to remain a peasant if it fell. Fate doomed him to become a soldier, and he served Joanna II., queen of Naples, who regarded him as the stay of her throne. The name of Sforza he assumed from the vigour with which he had hurled his axe. To his equally valiant son Francesco, he left, with a body of devoted followers, a power which made him formidable to any of the Italian states. Francesco became the son-in-law of Philip Maria Visconti, duke of Milan, and received the command of the Milanese forces in the war against Venice. But, after the death of his father-in-law (1447), symptoms of distrust appeared between him and the leaders of the Milanese state. He seemed to possess the power and the will to seize upon the throne, to which his wife Bianca had a hereditary claim. He accordingly concluded a treaty with Venice, advanced against Milan, and compelled the citizens by famine to surrender the city. They chose him duke in 1448, and Francesco, a fortunate and celebrated prince, became the founder of a dynasty, that did not inherit his fame nor his fortune. He died in 1466.

His son, *Galeazzo Maria*, a barbarian and a voluptuary, was murdered by some conspirators in 1476.—The son of Galeazzo, *Giovanni Galeazzo*, was deposed by his uncle Ludovico, surnamed the Moor (*il Moro*). The latter formed a connexion with Charles VIII. of France, to whom he opened the passage through Italy to Naples (1494), and thus prevented Giovanni's father-in-law, Alphonso, king of Naples, from rendering assistance to his son. At a subsequent period, he joined the league against France, and was on that account deposed by Louis XII. (1499). By the help of the Swiss, he expelled the French in the same year; but Louis again took the field against him, and prevailed upon the Swiss in his service to refuse to fight against their countrymen in the French ranks. Ludovico was afterwards betrayed by one of his Swiss mercenaries to the king, who (1500) carried him to France, where he died at Loches, in 1510.

His son, *Maximilian*, once more drove the French from his territories by the aid of the Swiss, but, in consequence of the battle of Marignano, was obliged to cede his dominions to Francis I. (1515), in consideration of a pension. Francis was afterwards driven from Italy by the emperor Charles V., who invested Francesco, brother of Maximilian, with the duchy of Milan, in 1529. On the death of Francesco, in 1535, Charles V. conferred the duchy on his son Philip II., king of Spain. See *Milan.*

S'GRAVESANDE. See *Gravesande.*

SHAD; a large species of herring (*clupea)*, which inhabits the sea near the mouths of large rivers, and in the spring ascends them for the purpose of depositing its spawn in the shallow water about their sources. The young fry remain for a season in the waters which gave them birth, but on the approach of cold weather descend the rivers, and take refuge in the ocean. The old ones likewise return, and at this time are emaciated and unfit for food. The form of the shad is the same as that of the other herrings, very much compressed, with the abdomen gradually becoming thinner, and forming a serrated edge; and, like them, the bones are much more numerous and more slender than in other fish. The shad which frequents American waters has not been accurately compared with the European, but is probably a different species. It usually weighs four or five pounds, but sometimes twelve; the scales are easily detached, when a row of dark spots is exposed on each side. It is highly esteemed for food, and is consumed in great quantities, in the fresh state. During the season they are an important source of wealth to the inhabitants of the borders of the Hudson, Delaware and Chesapeake. Great quantities are salted, but are less esteemed than when eaten fresh.

SHADDOCK; a large species of orange, attaining the diameter of seven or eight inches, with a white, thick, spongy and bitter rind, and a red or white pulp, of a sweet taste, mingled with acidity. It is a native of China and Japan, and was brought to the West Indies by a captain Shaddock, from whom it has derived its name. It is often called *pampelmoes*. See *Orange*.

SHADWELL, THOMAS, an English dramatic poet, was born at Stanton-hall, Norfolk, a seat of his father's, about 1640, educated at Cambridge, and afterwards placed at the Middle Temple, where he studied the law for some time, and then visited the continent. On his return from his travels, he applied himself to the drama, and wrote seventeen plays. His model was Ben Jonson, whom he imitated in drawing numerous characters, chiefly in caricature, of eccentricities in the manners of the day. Although coarse, and of temporary reputation. the comedies of Shadwell are not destitute of genuine humour. At the revolution he was created poet laureate, on the recommendation of the earl of Dorset; and as he obtained it by the dispossession of Dryden, the latter exhibited the bitterest enmity towards his successor, against whom he composed his severe satire of Mac Flecknoe. He died Dec. 6, 1692, in consequence, it is supposed, of taking too large a dose of opium, to which he was attached.

Besides his dramatic writings, he was author of several pieces of poetry of no great merit. The best edition of his works was printed in 1720 (4 vols. 12mo.)

SHAFTESBURY, LORD. See *Cooper.*

SHAGREEN, OR CHAGREEN (in the Levant, *Saghir*); a kind of grained leather, of a close and solid substance, used for forming covers for cases, &c., which easily receives different colours. It is prepared by the Tartars, Russians and Tripolitans, from the skin of the Bucharian wild ass, and is also made, in some parts of Russia, and in Persia, of horse-skin. The hinder back piece of the hides of these animals is cut off just above the tail and around the loins, in the form of a crescent. The piece thus separated is soaked several days in water, till the hair drops off. It is then stretched, and the hair and epidermis are removed with a scraper. After a second soaking, the flesh side is scraped in a similar manner; the skins are then stretched on wooden frames, and the hair side is covered with the seeds of the *chenopodium album*, or goose-foot. The seeds are then trodden into the leather, which, being dried, and freed from the seeds, is left full of indentations, which produce the grain of the shagreen. The dried skins are then scraped with a piece of sharp iron, till the inequalities are removed, and soaked again for twenty-four hours; the parts where the impressions of the seed were produced, are thus swollen and raised above the scraped surface. The skins are next immersed in ley, and are ready to receive their colour. The most common colour is sea-green (given by means of copper filings and a solution of sal ammoniac); but blue, red, black, and other colours, are also given it. Shagreen is also made of the skins of the sea-otter, seal, &c.

SHAH, OR SCHAH, in Persian, signifies *king;* whence *Shahnameh* (book of kings). See *Ferdusi*, and *Persian Literature.*

SHAH, NADIR. See *Nadir Shah.*

SHAKE, in music. See *Trill.*

SHAKERS, OR SHAKING QUAKERS; a sect which arose at Manchester, in England, about 1747, and has since been transferred to America, where it now consists of a number of thriving *families.* The founders were a number of obscure Quakers; and the Shakers still agree with the Friends in their rejection of the civil and ecclesiastical authority, and military service, in their objections to taking oaths, their neglect of the common courtesies of society, their rejection of the sacraments, and their belief in the immediate revelations of the Holy Ghost (gifts). At first, the motions from which they derive their name were of the most violent, wild, and irregular nature—leaping, shouting, clapping their hands, &c.; but at present, they move in a regular, uniform dance, to the singing of a hymn, and march round the hall of worship, clapping their hands in regular time. There are at present fifteen families, as their communities are called, in the United States, comprising 6000 individuals. In these communities, the property is held in common, and the members are distinguished for their industry, frugality, honesty, and good morals. Celibacy is enjoined, and their numbers are recruited by converts. The office of leader is bestowed by impulse or revelation on him who has the gift to assume it. The sect of Shakers was first introduced into America by Anne Lee, who, in 1770, became their leader. She was born at Manchester, in 1736, and was the daughter of a blacksmith of Manchester, where she also, at an early age, became the wife of a blacksmith. Her first "testimony of salvation and eternal life," borne in 1770, was the injunction of celibacy as the perfection of human nature, and the holding forth herself as a divine person. She was from this time honoured with the title of "mother Anne," and she styled herself "Anne the word." Having been persecuted in England, she went out to America in 1774, with several members of the society, and formed the first community at Watervliet, near Albany, where she died in 1784. Societies were soon organized at New Lebanon, in New York, and at Enfield, in Connecticut, and have gradually increased to their present number. See the official work, *The Testimony of Christ's Second Appearance*, or the article *The Shakers*, in the 16th volume of the North American Review.

SHAKSPEARE, WILLIAM, the greatest dramatic poet which the world has yet produced, was born in 1564, at Stratford on the Avon, a market-town in Warwickshire. The day of his birth is generally said to have been April 23, 1564. His father, according to Rowe, and most of the subsequent biographers of the poet, was a considerable dealer in wool; but according to John Aubrey (who entered himself as a student at Oxford in 1642, only twenty-six years after Shakspeare's death, and who derived his information from some of the neighbours of the family), he was a butcher; according to Malone, a glover. Malone says that William was the second son of eight children. In regard to his early education, there is much uncertainty. It is probable, however, that he learned Latin in the school of his native town: the French and Italian, which he often introduces in his plays, he may have acquired afterwards by himself. Before he was sixteen years old, his father required his aid in his trade; and, in his eighteenth year, he married Anne Hathaway of Shottery, who was twenty-five years of age, and who became the mother, in 1583, of his favourite daughter Susanna, and, in 1584, of his twin children, Hamnet and Judith. It must have been soon after this event that he visited London. The time usually assigned is 1586, when he was in his twenty-second year; but the cause of his leaving his native place, as well as his connexions and prospects in London, are unknown. Rowe relates, and others have adopted the opinion, that, having fallen into bad company, he was induced more than once to assist his associates in stealing deer from the park of Sir Thomas Lucy, of Charlcote, near Stratford. For this he was prosecuted by that gentleman so severely, that he at first wrote a satirical ballad on him, and afterwards fled from his home to avoid arrest. This story, however, does not rest on sufficient evidence to entitle it to credence. Without dwelling on this circumstance, or crediting another improbable story of his holding horses at the door of a theatre for his livelihood, we shall find a rational motive for his visiting London, and resorting to the theatre, by knowing that he had a relative and townsman already established there, and in some estimation. This was Thomas Green, a comedian. He became an actor, but, according to Rowe, he never rose higher than the performance of the ghost in his own Hamlet. Others, however, have endeavoured to prove that he was an excellent actor. His greatest patron was a friend of Essex, the earl of Southampton, who is said to have presented him, on one occasion, with a thousand pounds. Queen Elizabeth, who was much delighted with his Falstaff in Henry IV., is said to have ordered him to write another play, in which the facetious knight might appear in love, which gave rise to the Merry Wives of Windsor. He was also favoured with a letter from James I., in return, as doctor Farmer supposes, for the compliment in Macbeth. How long he acted has not been discovered; but he finally became a proprietor and manager, by license, of the Globe theatre in Southwark; and it was in this situation that he afforded Ben Johnson the opportunity of appearing as a dramatic writer. Having a sobriety and moderation in his views of life, not very common in the profession which he adopted, our great dramatist retired early, with a respectable fortune of from £200 to £300 per annum, equivalent, perhaps, to £1000 in our own day, and spent the remainder of his life in ease, retirement, and the conversation of his friends. For some years before his death, he resided at Stratford, in a house which continued in the possession of his descendants until the restoration. Garrick, Macklin, and others, were entertained, in 1742, under the mulberry-tree planted by Shakspeare. The house was afterwards sold to a clergyman of the name of Gastrel, who, being rated for the poor higher than it pleased him to pay, peevishly declared that the house should never pay again; and, from ill-will to the inhabitants of Stratford, who were benefited by the company it brought to the town, he pulled it down, and sold the materials. He had previously cut down the mulberry-tree for fuel; but a silversmith purchased the whole of it, which he manufactured into memorials of the poet. Shakspeare died on the anniversary of his birth-day, April 23, 1616, having completed his fifty-second year. He was interred in the church of Stratford. Aubrey says that Shakspeare was "a handsome, well-shaped man, verie good company, and of a very pleasant, reddie, and smooth witt." His son died at the age of twelve years. His widow survived him seven years. Susanna, who married a physician named John Hall, died aged sixty-six; and Judith, who married a Mr Guiney, died aged seventy-seven. The children of these ladies were all without offspring; but, in 1819, mention was made of a female relation of the family of Shakspeare. In 1741, a monument was erected to him in Westminster abbey, and paid for by the proceeds of benefits at the two great theatres. In 1769, by the efforts of Garrick, a festival was celebrated in honour of the poet in his native town of Stratford. There was a splendid procession of triumphal cars, in which King Lear, Richard III., Macbeth, Romeo and Juliet, accompanied with music and the shouts of the populace, moved to a splendid temple, where speeches, oratorios, and odes were combined to do honour to Shakspeare. The next year, the spectacle was exhibited at Drury lane in London, and was repeated for one hundred nights.

A. W. Schlegel has devoted to the character of Shakspeare one of the most valuable of his Lectures on the Drama, which are now translated into English. It may not be uninteresting to our readers to know the opinions of such a man on the great English poet, whose works he has himself translated and naturalized in Germany, where they have been as much admired as in England, and perhaps more profoundly criticised by men of distinguished talent. "The ignorance or learning of the poet," says Schlegel, "has been the subject of endless controversy; and yet it is a matter very easily settled. Shakspeare was poor in dead learning, but he possessed a fullness of living and applicable knowledge. He knew Latin, and even something of Greek, though not probably enough to read Greek writers with ease in the original. With the French and Italian he had also but a superficial acquaintance. He had a very extensive knowledge of English books, original and translated. He was sufficiently intimate with mythology to employ it in the only manner he wished—as a symbolical ornament. He had formed the most correct notions of the spirit of ancient history, and more particularly of that of the Romans; and the history of his own country was familiar to him, even in detail. He was an attentive observer of nature. He knew the technical language of mechanics and artisans. He seems to have travelled much in the interior of England, and to have been a diligent inquirer of navigators respecting other countries; and he was most accurately acquainted with all the popular usages, opinions, and traditions which could be of use in poetry. The proofs of his ignorance on which the greatest stress is laid, are a few geographical blunders and anachronisms. Because, in a comedy founded on a tale, he makes ships arrive in Bohemia, he has been laughed at. But, in such matters, Shakspeare is only faithful when he treats historical subjects relating to his own country. When he worked on novels, he avoided disturbing his audience, to whom they were known, by the correction of errors in secondary things. Shakspeare's anachronisms are for the most part, committed purposely. It was frequently of importance to him to bring the subject exhibited from the back-ground of time quite near to us: hence, in Hamlet, though avowedly an old northern story, there prevails the tone of fashionable society, and, in every respect, the costume of the most recent period. Without these circumstances, it would not have been allowable to make a philosophical inquirer of Hamlet, on which, however, the character of the whole piece depends. To me, Shakspeare appears a profound artist, and not a blind and wildly luxuriant genius. In such poets as are usually considered careless pupils of nature, I have always found, on a closer examination, when they have produced works of real excellence, a distinguished cultivation of the mental powers, practice in art, and views worthy in themselves, and maturely considered. That idea of poetic inspiration which many lyric poets have brought into vogue, as if they were not in their senses, and, like the Pythia, when possessed by the divinity, delivered oracles unintelligible to themselves, is least of all applicable to dramatic composition—one of the productions of the human mind which requires the greatest exercise of thought. It is admitted that Shakspeare reflected, and deeply reflected, on character and passion, on the progress of events and human destinies, on the human constitution, on all the things and relations of this world; so that it was only respecting the structure of his own pieces that he had no thought to spare. Shakspeare's knowledge of mankind has become proverbial: in this his superiority is so great, that he has justly been called the master of the human heart. His characters appear neither to do nor say any thing on account of the spectator; and yet the poet, by means of the exhibition itself, without any subsidiary explanation, enables us to look into the inmost recesses of their minds How each man is constituted, Shakspeare reveals to us in the most immediate manner. He demands and obtains our belief, even for what is singular, and deviates from the ordinary course of nature. Never, perhaps, was so comprehensive a talent for characterization possessed by any other man. It not only grasps the diversities of rank, sex, and age, down to the dawnings of infancy; not only do his kings and beggars, heroes and pick-pockets, sages and fools, speak and act with equal truth; not only have his human characters such depth and comprehension, that they cannot be ranged under classes, and are inexhaustible, even in conception; but he opens the gates of the magic world of spirits, calls up the midnight ghost, exhibits witches amidst their unhallowed mysteries, peoples the air with sportive fairies and sylphs; and these beings, existing only in imagination, possess such truth and consistency, that, even in the case of deformed monsters, like Caliban, he extorts the conviction that if there should be such beings, they would so conduct themselves. If the delineation of all his characters, separately taken, is inimitably correct, he surpasses even himself in so combining and contrasting them, that they serve to bring out each other. No one ever painted as he has done the facility of self-deception, the half self-conscious hypocrisy towards ourselves, with which even noble minds attempt to disguise the almost inevitable influence of selfish motives on human nature. Shakspeare's comic talent is equally wonderful with his pathetic and tragic. He is highly inventive in comic situations and motives: it will be hardly possible to show whence he has taken any of them. His comic characterization is equally true, various, and profound with his serious." In regard to his diction and versification, Schlegel observes, " The language is here and there somewhat obsolete, but much less so than that of most of the writers of his day—a sufficient proof of the goodness of his choice. He drew his language immediately from life, and possessed a masterly skill in blending the element of dialogue with the highest poetical elevation. Certain critics say that Shakspeare is frequently ungrammatical. To prove this assertion, they must show that similar constructions do not occur in his contemporaries; but the direct contrary can be established. In no language is every thing determined on principle: much is always left to the caprice of custom, and, because this has since changed, is the poet answerable for it? In general, Shakspeare's style yet remains the very best model, both in the vigorous and the sublime, the pleasing and the tender. The verse of all his plays is generally the rhymeless iambic of ten or eleven syllables, occasionally intermixed with rhymes, but more frequently alternating with prose. No one piece is wholly written in prose; for, even in those which approach the most to the pure comedy, there is always something added which elevates them to a higher rank than belongs to this class. In the use of verse and prose, Shakspeare observes very nice distinctions, according to the rank of the speakers, but still more according to their characters and dispositions. His iambics are sometimes highly harmonious and full sounding, always varied, and suitable to the subject; they are at one time distinguished for ease and rapidity; at another they move along with mighty energy. All Shakspeare's productions bear the stamp of his original genius; but no writer was ever farther removed from a manner acquired from habit and personal peculiarities."

Forty-three dramatic pieces are ascribed to Shakspeare; eight of them, however, are considered by English commentators to be spurious, but German critics regard them as genuine. The thirty-five uncontested pieces, which were written in twenty-three years, from 1591 to 1614, Malone has attempted to reduce to the following chronological order: Love's Labour lost, King Henry VI. (3 parts), the Two Gentlemen of Verona, the Winter's Tale, Midsummer Night's Dream, Romeo and Juliet, the Comedy of Errors, Hamlet, King John, King Richard II., Richard III., Henry IV. (1st part), Merchant of Venice, All's well that ends well Henry IV. (2d part), Henry V., Much Ado about Nothing, As you like it, the Merry Wives of Windsor, Henry VIII., Troilus and Cressida, Measure for Measure, Cymbeline, King Lear, Macbeth, the Taming of the Shrew, Julius Cæsar, Antony and Cleopatra, Coriolanus, Timon of Athens, Othello, the Tempest, the Twelfth Night. There are many objections, however, both internal and external, to this arrangement.

" The subjects of the comedies," to return to Schlegel, "are generally taken from novels; they are romantic love stories: none of them are confined exclusively to common or domestic relations: all possess poetical ornament, and some pass into the wonderful or the pathetic." The Two Gentlemen of Verona (compare Montemayor's *Diana*, book 2) paints the fickleness of love, and its infidelity towards friendship.—The Comedy of Errors (compare the *Menæchmi* of Plautus, and *A Comedy of Plautus called Monechme*, German, by Hans Sachs), the only play of Shakspeare of which the idea is borrowed from the ancients, is a piece which ought not to be played without masks. The Taming of the Shrew (compare Goulart, *Thrésor d'Histoire admirable de nostre Temps*, translated into English by Edward Grimestone, 1607; Percy's *Reliques of ancient Poetry*, vol. i.; George Gascoigne's *Supposes, a translation from Ariosto's Suppositi;* also, *The Art of Arts, or how to make a bad Woman a good one, formerly practised by an Italian Cavalier*, &c., German, Rappersdorf, 12mo.) is derived, mediately or immediately, from a piece of Ariosto. The prelude of the drunken tinker is probably from a popular tale, and the same subject has been dramatized by Holberg. These pieces are considered as productions of his youth. Love's Labour lost is referred to the same period.—All's well that ends well—the Griselda of Shakspeare (compare Boccaccio's *Decamerone*, *giorn.* iii., *novell.* 9; Painter's *Palace of Pleasure; Giletta of Narbon;* also the old book, *Schertz mit der Wahrheyt*) presents in Parolles a character of rich comic humour, which would be more celebrated if it had not been thrown into the shade by Falstaff.—Much Ado about Nothing (compare Belleforest's *Timbrée de Cardonne*, &c.; Bandello's *Novelle*, Venice, 1566, vol. i.; *Phœnicia, an interesting and memorable History*, &c. Magdeburg, John Franken, 1601; Ariosto, translated into English by Harrington, 1591; and particularly George Tuberville's account of this story) is the same, in its main plot, with the *Ariodante* and *Ginevra* of Ariosto.—Measure for Measure (compare G. Whetstone's *Promus and Cassandra*, 1578; Giraldo Cinthio's *Hecatomithi overo cento Novelle*, Venice, 1593, *decade* viii., *novello* 5, translated in Painter's Palace of Pleasure) is the triumph of mercy over strict justice. It contains the splendid character of Isabella.—The Merchant of Venice (compare Percy's *Reliques*, i.; Giovanni Fiorentino's

Il Pecorone, nel quale si contengono 48 *Novelle antiche belle d'Invenzione e di Stilo*, written in 1378, printed at Milan in 1554, and at Treviso in 1601; *Gesta Romanorum cum Applicationibus moralisatis ac mysticis*, Augsburg, 1489, and Strasburg, 1538; *Decamerone, giorn.* x., *nov.* 1; *The Jew*, an old English play; also *The Carnival in Venice*, an old German play) is a wonderful picture of character. It is one of Shakspeare's most perfect works. The fifth act of this play may be regarded as an afterpiece, serving to excite pleasant feelings, after the harrowing scenes exhibited in the preceding portions of the drama.—As you like it (compare Chaucer's *Coke's Tale of Gamelyn;* Thomas Lodge's *Rosalynd, or Euphues' golden Legacy*, 1590, 4to., an old pastoral romance) is a charming play, which, with its gayety, liveliness and freedom, seems to have been intended to show that nothing is wanted to call forth the poetry which has its dwelling in nature and the human mind, but to throw off all artificial constraint.—The Twelfth Night, or What you will (Bandello, t. ii., *nov.* 20), unites the entertainment of an intrigue contrived with great ingenuity, to the richest fund of comic characters and situations, and the beauty of an ethereal poetry. If this was in fact Shakspeare's last work, he enjoyed to the end of his days the same youthfulness of mind, and carried all the luxuriance of his talents with him to the grave.—The Merry Wives of Windsor (compare *The Lovers of Pisa*, in Tarleton's *Newes out of Purgatorie; Il Pecorone, giorn.* i., *nov.* 2; *The Fortunate, the Deceived, and the Unfortunate Lovers; Piacevoli Notti di Straparola*, Venice, 1567, *l.* i., *notte* 4, *favola* 4) is said to have been written at the request of queen Elizabeth, because she wanted to see Falstaff in love. It is certain that it was acted in her presence (probably at Windsor, at a festival of the order of the garter). Molière's School for Women resembles it in the particular that a jealous man is made the constant confidant of the progress of his rival. Of all the pieces of Shakspeare, this approaches the nearest to pure comedy. The conclusion is made romantic by a fanciful delusion, founded on a popular superstition.—A Midsummer Night's Dream (compare Bettie's *Titania and Theseus;* Plutarch's *Theseus;* Michael Drayton's *Nymphidia, the Court of Fayrie:* Chaucer's *Knight's Tale;* Boccaccio's *Teseide; Legend of Thisbe of Babylon*); the Tempest, source unknown (compare *Twenty of the Plays of Shakspeare, being the whole Number printed in Quarto, by George Steevens, Esq.*, London, 1666, 4 vols.) These plays resemble each other in this particular, that, in both, the influence of a world of spiritual beings is interwoven with the turmoil of human passions, and the farcical adventures of folly. The former piece was written certainly earlier, and is, perhaps, the most luxuriant and fanciful of Shakspeare's productions. It unites, in Titania's amour, the extremes of the fanciful and the vulgar. The second, apparently the fruit of Shakspeare's latter years, is superior in its delineation of character. In the wise, all-directing Prospero, in the tender flame of Ferdinand and Miranda, in the masterly picture of the terrestrial monster Caliban, and the heavenly Ariel, there is a most harmonious connexion of opposite conceptions.—The Winter's Tale (compare *A Pleasant History of Dorastus and Fawnia*, by Robert Greene; Spencer's *Fairy Queen*, book v., canto 9, 15) is one of those tales which are peculiarly fitted to beguile the dreary leisure of a long winter evening, which are attractive and intelligible even to childhood, and transport even manhood back to the golden age, when it yielded to the sway of the imagination.—Cymbeline (compare Boccaccio, *giorn.* ii., *nov.* 9; Hans Sachs, *The Innocent Lady Genura; Schertz mit der Wahrheyt;* Holinshed's *Chronicles;* Dion. Cass. *Hist. Rom.*, *l.* lx., *c.* 20; Suetonius's *Caligula*, *c.* 44; Henry's *History of Great Britain*, London, 1771, quarto, vol. i., page 17) is a remarkable composition, connecting a novel of Boccaccio with ancient British traditions, from the times of the first Roman emperors. By easy transitions, the poet blends into a harmonious whole the social manners of the latest times, with the deeds of heroes, and even with appearances of the gods.—Romeo and Juliet, (compare Girolamo dalla Corte's *Istoria di Verona*, 1594, vol. i.; *Istoria novellamente ritrovata di due nobili Amanti, con la pietosa Morte intervenuta gia nella Citta di Verona, nel Tempo del Signor Bartolomeo della Scala;* Bandello, *l.* ii., *nov.* 1; Boisteau's *Dixhuit Histoires tragiques, mises en Langue Francoise*, 1560, 12mo.; *The Tragical Historie of Romeus and Juliet*, London, 1562; Painter's *Palace of Pleasure*, *t.* ii., *nov.* 25; see also Lope de Vega Carpio's *Castelvines y Monteses, Comedia famosa*).—Othello (compare *Giraldi Cinthio*, *decade* iii, *nov.* 7—translated into French by Gabriel Chapuys, 1584—Englished by Painter) is a picture of love, and its pitiable fate, in a world whose atmosphere is too rough for this tenderest blossom of human life. The sweetest and the bitterest, love and hatred, gayety and dark forebodings, tender embraces and sepulchres, the fulness of life, and self-destruction, are blended into a unity of impression in this harmonious and wonderful work. In Othello, we recognize the wild nature of the African, tamed only in appearance by the desire of fame, by foreign laws of honour, and by nobler and milder manners. His jealousy is of that sensual kind which, in burning climes, has given birth to the disgraceful confinement of women, and to a thousand unnatural usages. The Moor is frank, confiding, grateful; but the force of passion puts to flight all his acquired and accustomed virtues. A more artful villain than Iago was never pourtrayed; cool, discontented, and morose, arrogant where he dares to be so, but humble and insinuating when it suits his purposes, he is a complete master in the art of dissimulation; accessible only to selfish emotions, he is thoroughly skilled in rousing the passions of others, and in availing himself of every opening which they give him; he is as excellent an observer of men as any one can be who is unacquainted with higher motives of action than his own experience. Desdemona is a high ideal representation of enthusiastic passion. No eloquence is capable of painting the overwhelming force of the catastrophe in Othello.—Hamlet (compare *Saxonis Grammatici Historiæ Danicæ Libri xvi*, ed. Stephanii, Soræ, 1644, *lib.* 3; Belleforest, *Avec quelle Ruse Amleth qui depuis fut Roi de Danemarc, vengea la Mort de son Père Huruondille, occis par Fengon, son Frère, et autre Occurrence de son Histoire;* English, *The Historie of Hamblet*, quarto, 1608) is unique in its kind; a tragedy of thought, inspired by continual and never satisfied meditation on human destiny, and the dark perplexity of events in this world. Hamlet is a mind of high cultivation, a prince of royal manners, endowed with the finest sense of propriety, susceptible of noble ambition, and open, in the highest degree, to enthusiasm for the excellence in which he is deficient. He acts the part of madness with inimitable superiority; but in the resolutions which he so often embraces, and always leaves unexecuted, the weakness of his volition is evident; he is a hypocrite towards himself; his far-fetched scruples are often mere pretexts to cover his want of determination—thoughts, as he says on a different occasion, which have

> ——but one part wisdom,
> And ever three parts coward.

Hamlet has no firm belief either in himself or in any thing else; from expressions of religious confidence, he passes over to sceptical doubts. He even goes so far as to say that "there is nothing either good or bad, but thinking makes it so." The poet loses himself with him in the labyrinths of thought, in which we neither find end nor beginning.—Macbeth (compare Holinshed's and Harrison's *Chronicles of Great Britain, Scotland, and Ireland*, London, 1577, continued by Hooker and others, 1587, 3 vols., fol.—the chief source of Shakspeare's pieces relating to English history; George Buchanan's *Opera Omn.*, Edinburgh, 1715, vol. i.) This is the greatest and most terrific tragedy that has appeared since the Eumenides of Æschylus. Shakspeare exhibits an ambitious, but noble hero, who yields to a deep-laid, hellish temptation. The weird sisters surprise Macbeth in the moment of intoxication after victory, when his love of glory has been gratified; they cheat his eyes by exhibiting to him as the work of fate, what can in fact be accomplished only by his own act, and gain credence for their words by the immediate fulfilment of the first prediction. The opportunity for murdering the king immediately offers itself; the wife of Macbeth conjures him not to let it slip; she urges him on with a fiery eloquence, which has all those sophisms at command that serve to throw a false lustre over the crime. Little more than the mere execution falls to the lot of Macbeth; he is driven to it, as it were, in a state of commotion in which his mind is bewildered. Repentance immediately follows, nay, even precedes the deed, and the stings of his conscience leave him no rest either night or day. Nothing can equal the power of this picture in the excitation of horror. We need only allude to the circumstances attending the murder of Duncan, the dagger that hovers before the eyes of Macbeth at the feast, and the madness of lady Macbeth.—In King Lear (compare *Shakspeare Illustrated, or the Novels and Histories on which the Plays of Shakspeare are founded*, by Miss Lenox, London, 1754, 3 vols.; Holinshed; Tyrrel's *General History of England*, London, 1700, vol. i; Percy's *Reliques*, i.; the Latin Chronicle of Geoffrey of Monmouth; Sidney's *Arcadia*, Edinburgh, 1590, quarto; Spenser's *Fairy Queen*, b. ii, canto x, stanzas 27—33; and the old play *The True Chronicle History of King Leir*, London, 1605, quarto) compassion is exhausted. The principal characters in this piece are not those who act, but those who suffer. We have not in this, as in most tragedies, the picture of a calamity, in which the sudden blows of fate still seem to honour the head which they strike, in which the loss is always accompanied by some flattering consolation in the memory of the former possession; but a fall from the highest elevation into the deepest abyss of misery, where humanity is stripped of all external and internal advantages, and given up a prey to naked helplessness.—In the three Roman pieces, Coriolanus, Julius Cæsar, and Antony and Cleopatra, the moderation with which Shakspeare excludes foreign appendages and arbitrary suppositions, and yet fully satisfies the wants of the stage, is particularly deserving of admiration. Under the apparent artlessness of adhering closely to history as he found it, an uncommon degree of art is concealed.—Timon of Athens (compare Plutarch; Lucian; *Palace of Pleasure*), and Troilus and Cressida (compare *Dictys Cretensis*, and *Dares Phrygius;* Guido dalle Colonne of Messina, *Historia de Bello Trojano*, translated into Italian by Ceffi, Venice, 1481, and into German in 1489, in the parts *de sexto et septimo bello*; Lydgate, *De Boke of Troye*, London, 1515, a prolix poem, modernized in 1614; Raoul de Fevre, *Recueil de Troyennes Histoires*, Englished by Caxton, 1471 and 1503; Chaucer, *The Boke of Troiles and Cresside;* Boccaccio's *Filostrate*, 1498, 8vo.; Alexander Barclay's *Ship of Fooles*, from the German of Seb. Brandt, 1570; Chapman's translation of Homer, 1581 and 1596). These pieces are not historical plays, properly speaking; and we cannot call them either tragedy or comedy. Timon, of all the works of Shakspeare, has most the character of satire, laughing satire, in the picture of flatterers and parasites, and Juvenalian satire, in the bitterness and imprecations of Timon against the ingratitude of a false world. Troilus and Cressida is the only play which Shakspeare allowed to be printed without having been previously acted. It is, throughout, a parody on the Trojan war, not as described in Homer, but in the romances of chivalry derived from Dares Phrygius.

The dramas taken from the English history are ten. The poet evidently intended them as parts of a great whole. The principal features of the events are exhibited with such fidelity, their causes, and even their secret springs, are placed in so clear a light, that we may obtain from them a knowledge of history in all its truth, while the living picture makes an impression on the imagination which can never be effaced. Eight of these plays, from Richard II. to Richard III., are linked together in uninterrupted succession. According to all appearance, the four last were first written. The two other historical plays taken from the English history, are chronologically separated from this series. In King John, all the political and national motives, which play so great a part in the following pieces, are already indicated—wars and treaties with France, a usurpation, and the tyrannical actions which it draws after it, the influence of the clergy, and the factions of the nobles. Henry VIII. again shows us the transition to another age;—the policy of modern Europe, a refined court life under a voluptuous monarch, the dangerous situation of favourites, who are themselves precipitated, after having effected the fall of others; in a word, despotism under milder forms, but not less unjust and cruel. In Richard II., Shakspeare exhibits to us a noble, kingly nature, at first obscured by levity, and the errors of an unbridled youth, and afterwards purified by misfortune, and rendered more highly and splendidly illustrious. The first part of Henry IV. is particularly brilliant in the serious scenes, from the contrast between two young heroes, prince Henry and Percy with the characteristic name of Hotspur. Falstaff (q. v.) is the summit of Shakspeare's comic invention. King Henry V. is visibly the favourite of Shakspeare in the English history. The three parts of Henry VI. were much earlier composed than the preceding pieces. We do not find in this piece the whole maturity of the poet's genius, but we certainly find its whole strength. Richard III. embraces the latter half of the reign of Edward IV., in the whole a period of eight years. Shakspeare intended that terror, rather than compassion, should prevail in this tragedy. Richard is the soul, or rather the demon of the whole. He fulfils the promise which he had before made of leading the murderous Macchiavel to school. Besides the uniform aversion which he inspires, he occupies us in the greatest variety of ways—by his profound skill in dissimulation, his wit, his prudence, his presence of mind, his quick activity, and his valour.

In regard to the pieces generally rejected by the English editors, Schlegel contends that Titus Andronicus is genuine, but supposes it to have been a production of Shakspeare's youth. Pericles, Prince of Tyre, he also considers as undoubtedly genuine. Of Thomas Lord Cromwell, Sir John Oldcastle, and A Yorkshire Tragedy, he says, "These three pieces are not only unquestionably Shakspeare's, but, in my opinion, they deserve to be classed among his best and maturest works." Respecting Locrine he does not express a decided opinion.

Besides his dramatic works, Shakspeare wrote one hundred and fifty-four sonnets, and two narrative poems—Venus and Adonis (printed in 1593), and the Rape of Lucretia. The former is called, by Shakspeare, in the dedication to the earl of Southampton, "the first heir of his invention." In these productions, the fire and power of Shakspeare are not to be mistaken. Their luxuriant imagery, play of wit, prolixity, and inequality, are to be attributed to his youth. Shakspeare has not strictly confined himself to the ancient mythology; for instance, he makes Venus to be rejected by Adonis. The one hundred and fifty-four sonnets do not resemble, in matter or form, the productions of Petrarch. They are condensed, intellectual, and often witty. Schlegel touches upon the important aid which they may afford to some future biographer of Shakspeare, in regard to the circumstances of his private life.

For further information, we would refer the reader to the various editions of Shakspeare, by Rowe, Pope, Warburton, Johnson, Steevens, Malone, &c.; to Douce's *Illustrations of Shakspeare* (London, 1807, 2 vols., 8vo.); Drake's *Shakspeare and his Times* (London, 1817, 2 vols., 8vo.); Seymour's *Remarks on the Plays of Shakspeare* (London, 1805, 2 vols., 8vo.); Hazlitt's *Characters of Shakspeare's Plays* (London, 1817, &c., &c.); Mrs Jamieson's *Characteristics of Women* (the female characters in Shakspeare's Plays) 2 vols. Lives of Shakspeare have been written by Rowe, Malone, and Skottowe: the last appeared in London, 1824, 2 vols., accompanied by illustrations of the poet. Numerous alterations and *rifacimentos* of the plays have been made, for the purpose of representation, by Sir William D'Avenant, Dryden, Shadwell, Dennis, Colley Cibber, Garrick, Kemble, &c. In Germany, commentaries have been written on the great dramatist by such men as A. W. Schlegel, who has translated the greater part of the plays; by Tieck, who has undertaken to complete the translation; by the poet Göthe, &c. In France, many of the plays have been adapted for the French stage by Ducis. Retzsch, a distinguished German artist, has lately published designs illustrative of scenes from the plays of Shakspeare, which are highly commended. The first number relates to Hamlet, and was published at Leipsic in 1828.

SHAMANS; in Great Tartary and Mongolia, a part of China, Siberia, and Kamtschatka, priests, who are at the same time physicians, sorcerers, and conjurers. Shamanism, which contains the lowest representations of the Deity and of divine things, was probably supplanted in the southern parts of Asia by the more elevated doctrines of Confucius and Zoroaster. In its present state, in Tangut, a part of China, and in Mongolia, it is a mixture of the old heathen Shamanism with Nestorianism (see *Nestorius*), and is called *Lamaism*, or *Shigemoonism.* (See *Lama.*) It has been diffused in China, where it is the religion of the court, by the Mantchoos, and prevails in Thibet, a part of India, in Tartary, Mongolia, and among the Calmucks. The doctrine of the metempsychosis, and the worship of the god Fo, form a part of modern Shamanism. (See *Fo.*) The principal doctrine of the primitive Shamanism was the existence of many gods, some created, some increate, existing in the form of heavenly bodies, or of animals, or of inanimate things, or arbitrarily formed by human hands. It also taught the existence of good and bad spirits. After death, men continue to exist, in a melancholy condition, influenced neither by good nor bad works. The religious service of the Shamanites consists of sacrifices, prayers, &c., by which the worshippers hope to gain the favour of the good gods, and avert the wrath of the bad.

SHAMO, DESERT OF. See *Cobi.*

SHAMPOOING. The process, as practised in the East Indies, is described under *Bath.*

SHAMROCK (in the Gaelic, *seamrag*); probably, in the Irish and Gaelic languages, a generic term for trefoils.* The name is commonly given to the heraldic emblem of Ireland. It is sometimes applied to the *medicago lupulina*, or hop-trefoil, a plant very much resembling, and often confounded with, the yellow clover, from which, however, it is readily distinguished by the spiral form of the pods.

SHANNON; the largest river, not only in Ireland, but in the British islands, originates in a little plain at the base of Quilka mountain, in the county of Cavan; and taking a westerly course, receives the waters of lough Allen, whence it flows through a length of 200 miles, into the Atlantic ocean, below the city of Limerick. It may be said to divide Ireland into two great divisions. In its course it expands into several great lakes or inland seas, the most important of which are lough Ree and lough Derg. Two lines of inland navigation, called the grand and royal canals, open a communication between the ports on the Shannon and the city of Dublin. Besides these great accessions to the completion of a useful and extensive line of water-carriage, the occasional difficulty of navigating the lakes has been obviated by the introduction of steam tugs, &c., for towing the barges through, so that the intercourse is now perfect from lough Allen to the Shannon's mouth, a distance of 254 miles, and from the same lough to the city of Dublin, by both the great canals. In its passage it reaches the shores of Leitrim, Longford, Westmeath, King's County, Tipperary, Limerick, and Kerry, on the east; whilst Roscommon, Galway, and Clare, front it on the west. For a further account of this noble river, see the article *Ireland.*

SHARK (*squalus* of Linnæus); a family of cartilaginous fishes, allied to the Rays, and celebrated for the size and voracity of many of the species.

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* See I. E. Bicheno's paper On the Plant intended by the Shamrock, read to the Lond. Lin. Soc.

The form of the body is elongated, and the tail thick and fleshy. The mouth is large, generally situated beneath the snout, and is armed with several rows of compressed, sharp-edged, and sometimes serrated, teeth. The water penetrates to the gills by means of several transverse openings situated on each side of the neck. The skeleton is cartilaginous. The skin is usually very rough, covered with a multitude of little osseous tubercles; and that of some species forms the substance called *shagreen*. The eggs of the sharks are few and large, in comparison with those of bony fishes; they are enveloped in a hard, horny, semi-transparent shell, terminated at the four angles with long filaments; in short, they resemble those of the rays, and are likewise frequently cast up by the waves upon the shores of the sea. The flesh of sharks is, in general, hard, coriaceous, and ill-tasted, but some are good for food. They are the most formidable and voracious of all fishes, pursue all other marine animals, and seem to care little whether their prey be living or dead. They often follow vessels for the sake of picking up any offal which may be thrown overboard; and man himself often becomes a victim to their rapacity. The sharks form several natural genera, distinguished by the presence or absence of bow-holes, or of the anal fin, by the form of the head, nose and teeth, &c. &c. The teeth of sharks are moveable at the will of the animal, and are usually laid down and directed backwards, but become erect at the moment the animal is seizing its prey. Shagreen, which is extensively used in the arts, is furnished by several species, and, together with their oil, forms the most important of their products. The basking shark (*selache maxima*) is by far the largest of the genus, sometimes attaining the length of forty feet; but it has none of the ferocity of the others, and the teeth are excessively small. It inhabits the northern seas. It is sometimes called *whalebone shark*, from having in the mouth a substance resembling whalebone. The hammer-headed sharks (*zygæna*) are remarkable among fishes for having the head flattened and projecting laterally, which gives to the animal something of the form of a hammer. The eyes are placed at the extremity of these prominences. They are very voracious, and frequently attack man. The species of *squalina* differ from the other sharks in having the mouth terminal, the body flattened horizontally, and the pectoral fins large, and the eyes on the upper part of the head. The long-tailed shark, or thresher, is distinguished by having the tail as long as the body.

SHARP (in Italian, *maggiore;* in German, *dur*, from the Latin *durus*, hard) is a musical term applied to those keys, the basis of which is the "perfect harmonic *triad*."—*Sharp* signifies also a character, the power of which is to raise a note, before which it is placed, half a tone higher than it would be without such a prefix. The character is formed thus: ♯ See *Flat.*

SHARP, James, archbishop of St Andrews, in Scotland, was born in Banffshire in 1618, and was early destined, by his family, for the ministry. With this view, he was placed at the Marischal college in Aberdeen, but, objecting to take the "solemn league and covenant," quitted the university, and went to London. During the civil wars, he returned to his native country, and obtained a professorship in the university of St Andrews. His eloquence and reputation caused him to be selected, by the moderate Presbyterian party in Scotland, to advocate their cause with the protector, Cromwell, against the demands of the more rigid Calvinists; and he was subsequently sent to Breda, by Monk, for the purpose of procuring the sanction of Charles II. to the proposed settlement of the ecclesiastical affairs of Scotland. He returned to Scotland, and delivered to some of the ministers of Edinburgh a letter from the king, in which the latter promised to protect the government of the church of Scotland, "as it is settled by law." The clergy, understanding this declaration in its obvious sense, were satisfied; but it subsequently appeared, that Sharp had in view to subvert the church government, which he affected to maintain, pleading to the friends of episcopacy that this letter would pledge the king to nothing, as the parliament had only to establish episcopacy, to transfer the pledge of the monarch to its support. Presbytery being accordingly overturned by parliament, Sharp was rewarded with the primacy, and appointed archbishop of St Andrews. The wanton cruelties which followed, confirmed the horror entertained against him, and raised the fury of some of his more bigoted opponents to attempts against his life. In 1678, he narrowly escaped assassination from the hand of James Mitchell, an enthusiast, who was some time after taken and executed. A similar attempt, the following year, was more successful. His carriage, in which he was travelling in Magus Muir, about three miles from St Andrews, on the 3d May, 1679, was met by some fanatics, headed by John Balfour of Burley, who were waiting there to intercept a servant of the archbishop's, named Carmichael. To tempers thus heated by fanaticism, the appearance of the archbishop himself was deemed a sign of the intention of Providence to substitute a more important victim; and, regardless of the tears and entreaties of his daughter, they dragged him from his carriage, and despatched him with their swords, with which they inflicted no less than twenty-two wounds.

SHARP, Granville, an English gentleman, eminent for his philanthropy and learning, was born in 1734, and educated for the bar, but did not practise at it; he obtained a place in the ordnance office, which he resigned at the commencement of the American war, the principles of which he did not approve. He then took chambers in the Temple, and led a life of private study. He first became known by his defence of a poor negro named Somerset. This man, having been carried to England by his master, was turned out into the streets to die, during a fit of sickness, and when, by the charity of Mr Sharp and others, he had been restored to health, was claimed again as property. The result of the law proceedings, on this question, not only cleared Somerset, but determined that slavery could not exist in Great Britain. Such an incident could not fail to deeply impress a benevolent mind; and slavery, in every country, became the object of his unceasing hostility. Having succeeded in the case of an individual negro, he interested himself in the condition of others, whom he found wandering in the streets of London, and, at his own expense, sent a number of them to Sierra Leone: he also, soon after, became the institutor of the society for the abolition of the slave trade, and sought to modify the harsh practice of impressment. He was likewise led, by his political principles, to be the advocate of parliamentary reform, in support of which he published a Declaration of the People's Natural Right to a Share in the Legislature, in which he contends for a revival of the political institutions of Alfred. He died July 6, 1813.

SHARP-SHOOTERS. Formerly, there were, in several armies, a few men attached to each company of troops of the line, who, unlike the rest of the infantry, took aim at particular individuals, had better guns or rifles, and did not shoot with the mass of the troops. These were called *sharp-shooters.* The better organization of armies in modern times, and particularly the introduction of *tirailleurs* (q. v.), has caused them to be abolished.

SHASTRA, OR SHASTER. See *Indian Literature*, division *Sacred Literature.*

SHAWLS. For the Cashmere shawls, see *Cashmere.*

SHEATHING, in naval architecture; a sort of covering nailed all over the outside of a ship's bottom, to protect the planks from the pernicious effects of worms. This sheathing, in former years, consisted of thin boards; but sheets of copper having been found far preferable, these have of late been almost universally adopted, especially in long voyages.

SHECHINAH, in Jewish history; the name of that miraculous light, or visible glory, which was a symbol of the divine presence.

SHEEP (*ovis*); a genus of ruminant quadrupeds, differing so slightly in the anatomical structure from the goat, that both genera are by some naturalists united. The principal distinctive characters consist in the absence of a beard, and the form and spiral direction of the horns. The wild sheep, or argali (*ovis ammon*), is by no means the helpless animal we are accustomed to see in a domestic state. (See *Argali.*) The sheep seems to be the most stupid of all domestic quadrupeds, and is probably the only one incapable of returning to a state of nature, even if placed in the most favourable circumstances. It neither knows how to avoid danger, nor to seek shelter from the changes of the atmosphere, nor even to procure nourishment, except in abundant pasturage. Its habits are well known. Its products are the flesh, milk, skin, and especially the wool, which employs a vast capital in the manufacture of clothing. The time allowed for fattening them is about three months before they are sent to market, and when they have attained the age of two or three years; unless the fleece be the object, when it may be delayed to the sixth, seventh, or even the tenth year, in a district where they are long-lived. Their ordinary life does not exceed twelve or fifteen years. The fleece is shorn every year, towards the month of May. It is sometimes washed on the back of the animal; but the more usual practice is to shear it without washing, as it then contains an animal oil, which is a great preservative against insects. The sheep require particular attention afterwards, as they are more exposed to the changes of the weather. At all times they are exposed to numerous maladies. The varieties of the sheep are very numerous, differing in size, the length of their legs, the size and number of their horns; some are covered with hair instead of wool; others have enormous tails; and others, again, pendant ears. The variety most celebrated for the fineness of the wool is the Spanish Merino, as improved in Germany: all the other most approved European varieties are crosses from the Merino. The English sheep is most celebrated for the quantity of its wool. Besides the argali, there is another animal more nearly related to the goat, inhabiting the Rocky mountains, between lat. 45° and 68°. It is more numerous in the western than in the eastern parts of these mountains, and is found in large flocks, frequenting the summits in the summer, and the valleys in the winter season. It is little known, but in some parts forms the principal sustenance of the natives. It is easily obtained by the hunters, but its flesh is not esteemed, neither is a value set upon its fleece. In size it approaches the sheep, and has long hair extending beyond the wool: the horns are five inches in length and one in diameter, conical, and slightly curved backwards. An interest has lately been excited about this animal in England, and the fleece is said to be as fine as that of the shawl goat of Cashmere. It is often called the *Rocky mountain sheep.*

Sheep-Raising. Our limits will not allow us to give in detail the history of this valuable domestic animal, with the improvements which have been made in it at different periods; and we must refer the reader for more information to works which treat particularly of the subject, as Loudon's Encyclopædia of Agriculture. In Germany, both governments and individuals have paid great attention to the improvement of the wool, and in some parts of that country it has been brought to such perfection as to surpass that of any other part of the world. Several works in German, on this subject, though referring more particularly to the country in which they were written, would afford important assistance to sheep-breeders in any country. When we look for the origin of the improvements which have been made in the breeding of this animal, which has become so important an element of national wealth, and the source of so much manufacturing and commercial industry, we are obliged to go back to the Romans. They had made such progress, that the whole system of sheep-breeding, at present in use in Spain, is essentially the same which was introduced there by the Romans. Columella, who lived under the emperor Claudius, gives us interesting information on this point. Among other things, he says that his uncle, who lived in Bœtica (which comprehends the present province of Estremadura), procured some wild African rams at Cadiz, of a coarse fleece, but of an admirable colour. He put them to some fine-wooled ewes, and, the male progeny being again put to Tarentine ewes, the offspring, with their descendants, united the colour of the sire with the dam's softness of fleece. Other agriculturists undoubtedly imitated him, and thus the purest white was communicated to the black or parti-coloured native flocks, which, according to Pliny, were common in Spain. The Tarentine sheep were most celebrated in Italy, and the Milesian in Asia Minor. They were termed *pellitæ* and *tectæ oves*, from the coverings of skin with which they were clothed, to protect the fleece; they were also denominated *molles oves*, not only from the softness of the fleece, but also from the delicacy of their constitution. The attention paid by the ancients to the sheep was excessive, and the animal was extremely tender; so that we must account for the transition from the ancient sheep to the Merino, which is a hardy animal, thriving in almost any climate, by supposing that other agriculturists imitated Columella; and by crossing the breed imparted a stronger constitution to the fine-fleeced, but delicate sheep of ancient Italy Strabo, indeed, describes the beginning of this improvement as having taken place in the reign of Tiberius. Fine rams were at that time sold at Truditania, part of Bœtica, for a talent, or about a thousand dollars—a price which, considering the value of money at that period, is immense. When the Roman empire was overrun, and almost all traces of civilization swept away, the Tarentine stock in Greece and Italy being very tender, and requiring the greatest care, became extinct; but the regenerated stock of Bœtica—the Merinos—being able to live in the mountains, survived the conquest of Spain by the Goths and Vandals; and from these Merinos are descended those animals which supply all the manufactories of fine cloth in Europe. Care was early taken in Spain that the improved sheep should not mix with the coarse native sheep. The government soon took this important branch of national industry under its protection, and established particular courts to have jurisdiction over all subjects connected with sheep, wool, shepherds, pastures, &c.

The way in which the improved sheep is generally bred in Spain is the following:—Whilst the common sheep remains always on the spot where it was born, and is housed in winter, the fine-woolled sheep is kept the whole time in the open air, in summer chiefly in the mountainous part of Old Castile, or the Montana, and in the lordship of Molina, in Arragon, which are the highest parts of Spain, containing the finest pasture. The former affords aromatic plants, which the latter does not; these mountains are covered with oaks, beeches, birches, hazel-bushes, &c., besides producing all the plants which grow in Switzerland. When a shepherd has driven his flock to the place where they are to remain for the summer, he first gives them as much salt as they are willing to lick. The estimated consumption during the five summer months is 20 cwts. of salt for 1000 sheep (perhaps, however, this estimate is too high). Towards the end of July, the rams are admitted to the ewes, from five to six rams to one hundred ewes; before and after, they remain separated. The rams yield more wool than the ewes, but not of so fine quality; three rams or five ewes afford twenty-five pounds. In the middle of September, the sheep are marked on the thigh. Towards the end of summer, the sheep are driven in flocks, comprising 10,000 individuals, divided into bodies of 1000—1200, from these mountainous districts into the southern plains of La Mancha, Andalusia, and especially Estremadura. The journey begins at the end of September, and, during its continuance, they enjoy great privileges. Sometimes they travel as much as twenty-five or thirty miles a day, in order to reach a convenient place for halting. The whole journey from the mountains to the interior of Estremadura is reckoned at about 690 miles, which occupies forty days. The shepherd conducts them to the pasture which they occupied the previous winter, and where most of the lambs were born. Here folds are constructed for the sheep, and huts made of branches for the shepherd. Shortly after their arrival in the winter pasture, the birth of the lambs takes place. The barren ewes receive the poorest pasture, the pregnant the next best, and the ewes which have lambed the best. The lambs born latest are put into the richest pastures to acquire strength for their journey. In March, the shepherds have much to do to the lambs—cut the tails, mark the nose with a hot iron, saw off the points of the horns, and emasculate those intended for wethers. In April, they return to the summer pastures. The flock at this time shows by its restlessness its wish to migrate; some sheep escape, &c.—an interesting fact, considering the restlessness of migrating animals at certain seasons. On the first of May the shearing begins, if the weather is not cold. It is performed under cover. Before shearing, the sheep are put into a building consisting of two apartments, from 400 to 800 paces long and 100 wide.

As many of the sheep as are to be sheared the next day, are taken on the evening into a narrow, long, low hut, called the *sweating house*, where the sheep being much crowded, perspire freely. The wool thus becomes softer, and is more easily cut. This practice was also pursued by the Romans. The wool is sorted and washed before being sent away. The sheep are carried to another place and marked, and those which have lost their teeth, are killed for mutton. There are now in Spain only about 4,000,000 of fine-woolled sheep. Sweden early imported Merinos, and greatly improved some of her sheep.

In Germany, the first improvement of native flocks by Merinos took place in Saxony. In the Erzgebirge, Hungarian rams had been previously introduced; but as early as 1765, above 200 Merino rams and ewes, accompanied by two Spanish shepherds, were imported into Saxony. In 1778, another importation of the finest Merinos, from the best flocks of Leon and Castile, took place, and important sheep farms were established. On that of Stolpen, the first established in Saxony, particular care has always been paid to the sheep, and it still affords extremely fine wool. It is said that Spain itself has at present no sheep equal to the stock imported in 1765: and the finest German wool brings a higher price in London than the best Spanish wool. The establishment at Stolpen has contributed greatly to the improvement of the Saxon sheep, and thereby to the promotion of industry in the country. From 1779 to 1811, more than 10,000 rams and ewes were sold there at moderate prices. The original German sheep is at present found hardly any where in Saxony, and a new, fine-woolled race has originated from the mixture with Merinos, which is called *electoral sheep*, and its wool *electoral wool*, as the present kingdom of Saxony was, before 1806, the electorate of Saxony.—See Von Ehrenfels, *On the Electoral Sheep and Electoral Wool* (Prague, 1822, in German). Beside the royal breeds, which always have been kept entirely pure, other farmers in Saxony have imported genuine Merinos. At Rochsburg, in the Erzgebirge, the sheep are fed the whole year round in stalls; and the lambs, at the age of one year, are almost full grown, and therefore yield a considerable amount of very long and strong wool. Prussia has lately made uncommon progress in the breeding of fine sheep, and some of the Prussian wool, particularly that of the Mark and Silesia, competes in the market with the electoral wool. Flocks of genuine Merinos have been imported into Prussia, and the government, some time since, undertook the establishment of a school for shepherds, where young men were to be instructed, at the public expense, in the care of sheep, in health and in sickness, made acquainted with the history of the improvements in the mode of raising them, &c. A similar school was formerly established in Sweden.

The Spanish breed of sheep was first introduced into Great Britain in 1787. Some individuals of the black and spotted kinds had indeed been procured and kept in the parks of noblemen previously, but without any regard to the wool; nor was much interest awakened by the flock imported in 1787. Subsequently great attention was paid to the improvement of English wool; but it was ascertained that though the fleece of the Merino did not much degenerate in England, it did not much improve, and the carcass, which naturally affords little weight of meat, did not improve; in consequence of which the farmers have found it for their interest, to return to the native breeds, and to give up the Spanish sheep. It appears to be sufficiently established, by evidence taken before the house of lords in 1828, and other authorities, that a considerable deterioration has taken place in the quality of British wool, particularly during the last thirty years. The great object of the agriculturists has been to increase the weight of the carcass and the quantity of the wool, and it seems very difficult, if not impossible, to accomplish this without injuring the fineness of the fleece. A very great change has taken place within the present century as respects the quantity of foreign wool imported into England, and the countries from which it is obtained. Previously to 1800, the average imports did not exceed 3,000,000 lbs., brought mostly from Spain. In 1800, they amounted to near 9,000,000 lbs. They now amount to between 25,000,000 and 32,000,000, the greater part furnished by Germany. The Spanish flocks suffered severely during the campaigns in Spain, and the best Spanish wool does not now bring more than half the price of the best German wool. The breed of sheep that was carried out to New Holland and Van Diemen's Land has succeeded remarkably well. The former promises, at no distant day, to be one of the principal wool-growing countries in the world. The imports into Great Britain in 1830, amounted to 1,967,309 lbs., while those from Spain amounted only to 1,643,515. According to Mr Luccock's estimate, which was made with great care, the total number of sheep and lambs in England and Wales, in the year 1800, was 26,148,463. The number has not probably varied much in the interim. In Scotland, it may be 3,500,000; in Ireland it is probably under 2,000,000; so that the total number in Great Britain and Ireland may be taken at about 32,000,000. In the United States, the first Merinos were imported (about 300 in number) in the year 1810, by general Humphreys, American minister in Portugal, and the consul, Mr Jarvis. General Derby of Salem, imported as many more; and, in 1825, a great number of Saxon sheep were brought into that country. These contributed to improve the American breed. But the American wool is far from competing with the Spanish or German, for which many reasons may be given, among others, that the high price of labour prevents the existence of a particular class of shepherds. The most improved flocks in the United States are to be found in Vermont and New York. According to calculations as accurate as they could well be made, there are 20,000,000 sheep, of all kinds, in the United States. The successful introduction of the Merino at the cape of Good Hope, New South Wales, &c., has proved that it will thrive wherever it receives proper care. In hot climates, however, particular attention is required to prevent the wool from degenerating. The sheep must not be exposed too much to the sun, nor to the dew. See *Wool.*

SHEER; the longitudinal curve of a ship's decks or sides.

SHEET; a rope fastened to one or both the lower corners of a sail, to extend and retain it in a particular situation.

SHEFFIELD; a large manufacturing town of England, in the West Riding of Yorkshire, is situated at the confluence of the rivers Sheaf and Don, 36 miles south of Leeds, and 162 north-west of London. The streets are regular, the houses well built, mostly of brick, but the smoke of the manufactories tends to give the town a sombre appearance. The public buildings are not remarkable for beauty. The principal are the four churches belonging to the establishment, the town-hall, cutlers'-hall, the general infirmary, the assembly-room, the music-hall, and the theatre. The town contains, besides, seven meeting houses for dissenters. Sheffield has been long noted for its manufactures of hardware, which comprise two great divisions, viz. those of cutlery and plated goods. The latter manufactures are wholly confined within the town; but those of cutlery goods are also carried on in all the villages and hamlets in the neighbourhood, to the distance of seven miles. Besides these manufactures, there are in the town and its vicinity several extensive founderies for iron. For several centuries, its trade was inconsiderable, consisting almost entirely of sheath-knives, scissors, sickles, and scythes: but since 1750, the town has advanced rapidly in population and wealth. The origin of Sheffield is unknown; it was formerly distinguished for its castle, supposed to have been built during the reign of Henry III. The population, in 1821, was 42,157; in 1841, 109,597.

SHEFFIELD, JOHN, duke of Buckingham, a nobleman of some note as a wit and a statesman, born in 1649, was the son of the earl of Mulgrave, to whose title he succeeded in 1658. At the age of seventeen, he engaged as a volunteer in the first Dutch war, on his return, by the union of wit and spirit so agreeable to Charles II. he became a great favourite at court. On the accession of James II. he was made lord chamberlain; and his attachment to that sovereign induced him to take a seat in the ecclesiastical commission, and practise other compliances, though he opposed many of the counsels which brought ruin on his master. At the revolution he took the part of an anti-courtier, but in 1694, became member of the cabinet. On the accession of Anne, to whom he is said once to have been a suitor, he was advanced to the dukedom of Buckingham; but jealousy of the duke of Marlborough drove him from office, until the change of 1710, when he was made first steward of the household, and then president of the council, under the administration of Harley. After the death of Anne, he employed his time chiefly in literary pursuits, until his death in 1720. His literary fame was mainly assisted by his rank and influence in his own day. In his Essay on Satire, he was supposed to have been assisted by Dryden; and few of his other pieces merit attention. His widow published a splendid edition of his works in 1723, in two vols. quarto; the first of which contained his poems upon various subjects, and the latter his historical memoirs, character, speeches, and essays.

SHEHERAZADE. See *Arabian Nights.*

SHEIK, OR SCHEIKH (*Arabic*); that is to say, the *elder or eldest.* The chief of the Arabic tribes or hordes are called by this name. They are very proud of their long line of noble ancestors, especially the leaders of the Bedouins. Some of them also take the title of *emir*, without belonging to the race of Mohammed. The prince of Mecca is styled "sheik of Mecca," and calls himself a legitimate descendant of Mohammed, and demands presents from the caravans. The Mohammedans also call the heads of their monasteries *sheiks*, and the Turkish mufti is sometimes called *sheik ulislam* (chief of the true believers).

SHELL. See *Conchology*.

SHELL, in artillery, includes bombs and granades. See those articles.

SHELLEY, Percy Bysshe, a modern English poet, was the eldest son of Sir Timothy Shelley, Sussex, and born at Field-place, in that county, August 4, 1792. He was sent to Eton, whence he was early removed to Oxford. This removal was owing to his eccentricity of character, which led him to neglect the studies, and violate the rules of the school, and finally resulted in his expulsion from Oxford. His family, naturally offended with his conduct, and not less with his free opinions in matters of religion, was still farther estranged by an ill assorted marriage. The result was very unfortunate, for after the birth of two children, a separation took place by mutual consent; and the death of the lady soon after, exposed him to much obloquy. On the decease of his first wife, he married Miss Godwin, daughter of the celebrated author of Political Justice, by Mary Wolstonecraft, and soon after retired to Marlow, in Buckinghamshire, where he wrote his Revolt of Islam. About this time, application was made by his family to deprive him of the guardianship of his two children, a boy and a girl, on the ground of his atheistical and sceptical notions, and certain dangerous opinions respecting the intercourse of the sexes. The application succeeded, principally owing to a juvenile production, called Queen Mab, written while at Oxford, and published without the consent of the author. This event caused him much uneasiness, and probably induced him to quit England, and repair with his second wife and their children to Italy, where he renewed an acquaintance with Lord Byron, to whom he had become known during a former visit to the continent. With him and Leigh Hunt, Shelley joined in a periodical miscellany, published in London, entitled The Liberal. This publication, which contained the Vision of Judgment, by Lord Byron, and other original productions, was interrupted by the untimely death of Mr Shelley, who was drowned on his return from Leghorn to his house, on the gulf of Lerici, in the bay of Spezia, by the wreck of his sailing boat, in a sudden storm, July, 1822. A few days afterwards the body was washed ashore near Via Reggio, and was subsequently reduced to ashes by his friends. Shelley's remains were deposited in the Protestant burial-ground at Rome. At the time of his decease, Mr Shelley had nearly completed his thirtieth year. His principal works are the Revolt of Islam; Alastor, or the Spirit of Solitude; The Cenci, a tragedy (see *Cenci, Beatrice*); Adonais; Hellas, Prometheus Unbound; and a posthumous volume of poems.

SHELL-LAC. See *Coccus*.

SHEM; one of the patriarchs, eldest son of Noah, is said in Scripture to have died at the age of 600 years, The Hebrews trace their origin to Shem, through Abraham, who was the eighth in descent from him.

SHEMITISH LANGUAGES. See *Semitic Languages*.

SHENANDOAH; a river of Virginia, which flows into the Potomac, after a separate course of about 200 miles, just before the Potomac bursts through the Blue Ridge. It waters a fertile country, and has good boat navigation for 100 miles.

SHENSTONE, William, an English poet, was born at Hales Owen, in Shropshire, in 1714. His father was a gentleman farmer, who cultivated a moderate estate, called the *Leasowes*, which were rendered celebrated by the taste of his son. The latter was educated at Oxford, and entertained thoughts of taking his academical degrees, and proceeding to the study of some profession, but was seduced, by obtaining possession of his paternal property, to relinquish all his views of an active life, and occupied himself with rural embellishments, and the cultivation of poetry. In 1737, he printed a volume of juvenile poems, which obtained little notice; and, in 1740, the Judgment of Hercules. In the following year appeared his School-mistress, the best of his poems. His great object, to render the Leasowes famous for picturesque beauty and elegance, led to expenses which he could but ill support, and he was by no means a happy inhabitant of the Eden which he had created. He died in February, 1763, in his fiftieth year. His works were collected in three volumes, octavo. The first consists of elegies, odes, songs and ballads, levities, or pieces of humour, and moral pieces; the second contains his prose works; and the third, Letters to his Friends. As a poet, he is elegant, melodious, tender, and correct in sentiment, and often pleasing and natural in description, but rather feeble. The prose works display good sense and cultivated taste, and contain just and acute observations on mankind. See his *Life* by Johnson, and Graves's *Recollections of Shenstone*.

SHEPHERD KINGS. See *Hycsos*.

SHEPHERD'S DOG (*canis domesticus* of Linnæus, and *le chien de berger* of Buffon) is distinguished by its upright ears and the remarkable villosity of the tail beneath, and stands at the head of the class of farm dogs. This breed of dogs is said to be preserved in the greatest purity in the northern part of Scotland, where its aid is highly necessary in managing the numerous herds of sheep bred in those extensive wilds. The same variety is diffused over most parts of Europe. The dog prevents the sheep from straggling, and conducts them from one part of the pasture to another: it will not suffer any strange sheep to mix with them. In driving a number of sheep to a distance, a well-trained dog always confines them to the road, watching every avenue that leads from it, and pursuing every straggler. At the herdsman's signal, this faithful assistant will conduct the sheep to him from a considerable distance.

SHEPHERD'S PURSE (*thlaspi bursa pastoris*); a small, insignificant, cruciferous plant, bearing diminutive white flowers, and short, triangular, compressed pods, which is now naturalized, and common in cultivated grounds, in most parts of the world. The radical leaves are pinnatifid. It is of no known utility.

SHERBET, or SORBETTO; a beverage of the Orientals, made of water, sugar, lemon-juice, rose-water, dried fruits and amber.

SHEREEN, or SCHIRIN, or SIRA; an Armenian princess, second wife of Chosrou or Chosroes II. who reigned over Persia in the beginning of the seventh century. Shereen is still in Western Asia the model of female perfection, celebrated for her wit, her accomplishments, and her incomparable beauty. Her story is to be found in the *Shahnameh*. (See *Ferdusi*.) The Persian and

Turkish romances represent her as the daughter of Maurice, a Byzantine emperor. They are filled with the account of her sudden passion for Chosroes, her gradual alienation from him, the love of the sculptor Ferhad, the most beautiful youth of the East, for the fascinating queen, and her melancholy fate. Her husband was murdered by his own son, and Shereen put herself to death on his tomb, to escape the importunities of the parricide. Von Hammer has drawn the materials of his *Schirin*, a Persian romantic poem (14 cantos, in German, Leipsic, 1809), from Persian and Turkish sources.

SHERIDAN, Thomas, son of an Irish divine, was born near Dublin, in 1721, and was sent to Westminster, where he was admitted on the foundation. He afterwards entered as a student of Trinity college, Dublin, but quitted the university for the stage, and made his first appearance in the character of Richard III. (1743), in Dublin. After a visit to London, in 1744, he returned to the Irish metropolis, and became a theatrical manager. In this situation he experienced various misfortunes, and the establishment of a rival theatre completed the ruin of his affairs. He then commenced lectures on elocution, to which subject he endeavoured to draw the attention of the public by means of the press. He subsequently repaired to France to avoid his creditors; and, while there, he had the misfortune to lose his wife (1767). Returning to England, after the retirement of Garrick from the stage, he became manager of Drury lane theatre, of which his son was one of the proprietors; but some disputes taking place, he retired from the office, and resumed his attention to oratory. The latest of his literary labours was an Orthoepical Dictionary of the English Language, in 1788, in which year he died.—His wife *Frances* was the author of Sidney Biddulph (3 vols.)—a very interesting but sombre tale; Nourjahad, an Eastern romance, since dramatized; and two comedies, the Discovery, and the Dupe. See the account of her life by her granddaughter. Alicia Lefanu.

SHERIDAN, Richard Brinsley, the third son of the preceding, distinguished as a statesman, wit and dramatist, was born in Dublin, October 30, 1751. For the early development of his talents, he was indebted to the instructions of his accomplished mother; and he was afterwards placed at a grammar-school at Dublin. In 1762, he was sent to Harrow school, which he left at the age of eighteen, owing to his father's embarrassments. With a view to the legal profession, he entered as a student of the Middle Temple; but the close application and industry requisite for success as a lawyer, were uncongenial with his disposition, and he relinquished the bar for politics and the drama. His early marriage, also, made some more immediate means of support than the practice of a junior barrister necessary, and he turned his attention to dramatic composition. His first production, the Rivals, was acted at Covent Garden in 1775, with moderate success; but the Duenna, a musical entertainment, which followed, was received with general admiration; and his School for Scandal gained him the highest reputation as a comic writer. On the retirement of Garrick from the management of Drury lane theatre, Sheridan, in conjunction with Doctor Forde and Mr Linley, purchased Garrick's share of the patent. This property qualified him for a seat in parliament; and, in 1780, he was chosen member for the borough of Stafford. Lord North was then minister, and Sheridan, joining the opposition, displayed so much ability, that, on the retreat of the premier, and the conclusion of the American war, he was made under secretary of state for the war department. He resigned, with his principal, in consequence of a dispute with lord Shelburne, afterwards marquis of Lansdowne, who was at the head of the ministry. His intimate connexion with Fox brought him again into office on the coalition of that statesman with lord North, when Sheridan held the post of joint secretary of the treasury under the duke of Portland. The dissolution of that ministry threw him again into the ranks of opposition, where he remained during the whole period of the political ascendency of Mr Pitt. He now attained distinguished celebrity as a parliamentary orator, and his talents were particularly exhibited in his opposition to the extension of the revenue laws, and on the subject of the Westminster election; but the grandest display of his eloquence occurred during the progress of the impeachment of Warren Hastings. In 1792, Mr Sheridan lost his wife, who left one son; and, three years afterwards, he married Miss Ogle, daughter of the dean of Winchester. With this lady he had a considerable fortune, which enabled him to purchase the estate of Polesdon, in Surrey; and, as he held the office of receiver general of the duchy of Cornwall, worth £1200 a year, and retained his interest in Drury lane theatre, he seemed to be placed beyond the reach of pecuniary distress. The political changes consequent on the death of Mr Pitt, in 1806, occasioned the exaltation of the party with which Sheridan was connected, and he obtained the lucrative post of treasurer of the navy, and the rank of a privy counsellor. This administration being weakened by the loss of Mr Fox, who survived his celebrated rival only a few months, new alterations took place, and Sheridan was deprived of office, to which he never returned. At the general election in 1806, he obtained a seat for Westminster, the great object of his ambition; but he was afterwards nominated for the borough of Ilchester, which he continued to represent during the remainder of his parliamentary career. The latter part of the life of this highly-talented individual was imbittered by misfortunes, principally arising from his own indolence and mismanagement, though the destruction of Drury lane theatre by fire contributed to increase his difficulties. When the affairs of that establishment were arranged, in 1811, Mr Sheridan and his son were to have £40,000 for their share of the property; but the portion of the former was not sufficient to liquidate the debts and reserved claims to which it was liable. The dissolution of parliament, and his failure in an attempt to obtain a seat for Stafford, the borough he had formerly represented, completed his ruin. In the latter part of 1812, he had relinquished all thoughts of returning to the house of commons; and the remainder of his existence was spent in attempts to ward off the dangers to which his improvidence had exposed him. At length every resource failed, and the disappearance of his property was followed by the arrest of his person. After a few days detention, he was released, but only to experience fresh apprehension and alarm, from which he sought a temporary relief in that unrestrained indulgence and dissipation which had occasioned his misfortunes. Intemperance had undermined his constitution, and mental anxiety completed the destruction of his health. Even on the bed of sickness he was not exempted from the terrors of being arrested for debt. His death took place July 7, 1816. Besides the plays already mentioned, Mr Sheridan was the author of St Patrick's Day, or the Scheming Lieutenant, a farce; a Trip to Scarborough, a comedy, altered from Vanbrugh; the Camp, a farce; the Critic, or the Tragedy rehearsed: Robinson Crusoe, or Harlequin Friday, a pantomime; and Pizarro, a play, from the German of Kotzebue. He also wrote verses to the Memory of David Garrick (1779, 4to.); and a Comparative Statement of the two Bills for the better Government of the British Possessions in India (1788, 4to.). As a speaker, he ranks among the most finished and varied of the rhetorical school; and his speech already alluded to against Warren Hastings, has been deemed one of the most striking specimens of English eloquence upon record. As a dramatist, he may be considered the head of the department of that line of comedy which exhibits the polite malice, the civil detraction, the *equivoque*, intrigue, persiflage, and lurking irony, which characterize social intercourse in the more cultivated ranks of life. Wit usually takes the lead of humour in this species of composition, with a correspondent destruction of nature and verisimilitude. The School for Scandal is a felicitous exemplification of character, and of some of the most conspicuous of the well-bred vices and follies of fashionable life. A collection of his speeches, in five volumes, was published in 1816. His dramatic Works appeared in 1821 (2 vols., 8vo.), edited by Thomas Moore, who has since published a Life of Sheridan.

SHERIFF. The sheriff is an officer of great antiquity, and known by a corresponding name in most countries in Europe. He was called in the Danish *gravue*, Swedish, *grefwe*; Anglo-Saxon *gerefa*; German, *graf*; and, in the Latin of the middle ages, *graphio*, or *grafio*. Adelung observes that the twelve judges appointed by Odin were called *greve*. Both the officer and the name have, with some variations, been retained in Germany. The *graf* of the Germans is, for the most part, a title of dignity, answering to the *count* of the French, and the *earl* of the English; and, in some cases, it is also the title of a prince, as the *landgraf*, or *markgraf*. Among the Anglo-Saxons, the *gerefa*, or, as he is called in English, the *reeve*, was an officer of justice inferior in rank to the alderman. He was a ministerial officer, appointed to execute processes, keep the peace, and put the laws in execution. He witnessed contracts, brought offenders to justice, and delivered them to punishment, took bail of such as were to appear before the *shiregemote*, or county court, and presided at the hundred court, or *folcmote*. There was a distinction both in the rank and jurisdiction of the *gerefa*. The *shire-gerefa*, *shire-reeve*, or *sheriff*, was probably distinguished by the name of the *king's gerefa*, because he more immediately executed the king's precepts, and sometimes sat in the place of the alderman in the county court. He appears, also, to have been distinguished by the title of the *heh-gerefa* or *high-sheriff*. The *gerefa* who acted in the tithing was called the *tithing-reeve*, he who acted in the *byrig*, or burgh, a *borough-reeve*, and he who acted in the town the *tun-gerefa*. The leading duties of this officer, in Britain and the United States, are the same as those performed by the Anglo-Saxon *gerefa*, namely, of an executive as distinguished from those of a judicial kind.

SHERIFFMUIR, OR SHERIFF MOOR; a plain of Scotland, near the Grampian mountains, in Perthshire. Here a bloody battle was fought between the army of George I. and the rebels, under the earl of Mar, in 1715. See *Stuart, James Edward Francis.*

SHERIFF'S TOURN. See *Courts.*

SHERLOCK, WILLIAM, an Episcopal clergyman, born in Southwark, about 1641, studied at Eton, and afterwards at Peter-house, Cambridge where he proceeded doctor of divinity in 1680. After the revolution, having refused to take the oath of allegiance to William III., he was suspended from the pastoral office; but, on his subsequent compliance, he was restored, and, in 1691, promoted to the deanery of St Paul's. His death took place in 1707. Doctor Sherlock distinguished himself as a polemical divine against the Dissenters, and carried on a controversy with doctor South relative to the doctrine of the Trinity. His works on practical theology, especially his Discourses on Death and on Judgment, are much esteemed, and have passed through numerous editions.

SHERLOCK, THOMAS, son of the preceding, was born in London, in 1678, and received his education at Catharine-hall, Cambridge, where he obtained a fellowship. In 1714, he was chosen master of Catherine-hall, and was promoted to the deanery of Chichester in 1716, after which he entered into a controversy with bishop Hoadly, in defence of the corporation and test acts. In 1725, he published Discourses on Prophecy, intended to obviate the infidel objections of Anthony Collins. Doctor Sherlock, in 1728, succeeded Hoadly in the bishopric of Bangor, and, in 1734, in that of Salisbury. He was offered the primacy on the decease of archbishop Potter, in 1747; but he refused it; and, the following year, he was translated to the see of London, where he remained till his death, 1761. Bishop Sherlock was the author of the Trial of the Witnesses of the Resurrection of Jesus; and his Sermons are among the best specimens of English pulpit eloquence extant.

SHERRY; a Spanish wine, growing in the neighbourhood of Xeres de la Frontera, in the province of Andalusia, near Cadiz. Many of the principal vineyards are in the hands of British and foreign settlers, to which probably is to be ascribed the improvement which of late has taken place in Sherry wines. The best soil (*albariza*) consists chiefly of carbonate of lime, with a small admixture of silex and clay, and occasionally magnesia. Red and white grapes are used indiscriminately. When ripe and gathered, they are spread on mats, and left to dry for two or three days; they are then freed from the stalks, and the rotten or unripe berries rejected. Being now introduced into vats, with a layer of burnt gypsum on the surface, they are trodden by peasants with wooden shoes. The juice is collected in casks, in which the fermentation is allowed to take place, continuing generally from October till the beginning or middle of December. The wines are then racked from the lees, and those intended for exportation receive additions of brandy, seldom more than three or four gallons to the butt. The new wine is harsh and fiery, but mellows by being allowed to remain in the wood four or five years, though fifteen or twenty years are required to perfect its flavour. Sometimes bitter almonds are infused to give the wine a nutty flavour. The dry sherry is the most esteemed. Its flavour partakes of the taste of leather (called in Spanish *olor de bota*). This is owing to the custom of bringing the wines down the country in large leather vessels, or, as the Spaniards call them, *botas*, whence we derive the term *butts*. This flavour goes off with keeping. The sherry wines are shipped, for the most part, at Cadiz, and are principally exported to England.—See Henderson's *History of Ancient and Modern Wines* (London, 1826, 1 vol., 4to.).

SHETLAND OR ZETLAND ISLES; the north-east division of the Scottish Northern Isles, about fifteen leagues north-east of the Orkneys. The southern promontory of the Mainland (the largest of the Shetland islands) lies in 59° 48′ 30″ of north latitude, and the northern extremity of Unst, in latitude 60° 52′ north. The meridian of London passes through this last island. The islands are about eighty-six in number, of which forty are inhabited: the others are small holms or rocky islets, used only for pasturage. The principal inhabited islands are the Mainland (with the capital, Lerwick), Yell, Unst, Whalsay, Bressay. The climate is not agreeable. The winds are tempestuous, and the rains heavy. The sea swells and rages in such a manner, that for five or six months the ports are almost inaccessible. There is great diversity of soil. The general appearance is a scene of ruggedness and sterility. Some patches of miserably cultivated soil relieve the eye of a traveller; but no tree nor shrub is to be seen. The western parts are peculiarly wild, dreary, and desolate, consisting of gray rocks, stagnant marshes and pools, broken and precipitous coasts, excavated into vast natural arches and deep caverns. There is plenty of peat and turf for fuel. Great numbers of horses are bred in Shetland, though they are of very small size. These little animals, however, are full of spirit, and bear fatigue much better, in proportion to their size, than larger horses, and evidently proceed from the Norway horse, though reduced in size, perhaps, in some degree, by scanty fare. The cattle of Shetland are also of a small size. The inhabitants are a hardy, robust, and laborious race, and hospitable. They have few manufactures. They make a coarse cloth for their own use, and a little linen. They likewise export great quantities of stockings, knit from their own wool; some of which are so fine that they equal silk in price, and can be drawn through a finger ring. Their chief trade is to Leith, London, Dublin, and Barcelona; but they also deal with the Dutch fishermen, who visit their islands. They export annually about 1000 tons of cod, tusk, and ling, and about £5000 worth of stockings and mittens. The whole exports may be estimated at £35,000. In 1755, the population of Shetland was estimated at 15,210; in 1793, at 20,196; in 1831, at 29,392; and in 1841, at 30,558. See Hibbert's *Description* (Edinburgh, 1821).

SHIBBOLETH. When Jephthah, at the head of the Gileadites, had defeated the Ephraimites, and his troops intercepted their flight across the Jordan, they required the former to pronounce the word *Shibboleth*. The peculiar pronunciation of the Ephraimites, who, unable to give the aspirate, called it *Sibboleth*, betrayed them to their enemies. The word has thence acquired the signification of the watch-word of a party.

SHIELD; a piece of defensive armour, borne on the left arm, to screen the body from the blows of the enemy; afterwards superseded, in a great degree, by the use of more convenient armour. (See *Breast-plate*.) Shields were composed of different materials, and were of various figures. The ancient *clypeus* was round, and of brass. The *scutum*, or ἀσπὶς, was of an oblong shape, rectangular, generally made of wood, covered with skins; the *parma* was made of skin; the *pelta* was crescent-shaped. In the centre was the *umbo*, an iron boss projecting forward, to glance off missiles, or to press the enemy. They were often highly ornamented, and the ancients esteemed it a great disgrace to leave them on the field of battle. "With it, or on it," was the exhortation of a Spartan mother to her son, giving him the buckler of his father, as he went to war. In time of peace, they were hung up in consecrated places, and those taken in war were often suspended in the temples as trophies. (Potter's *Antiquities;* Vegetius, ii., 17.) The Tartar shield is made of leather. Both in France and in England and Scotland, round leather shields were used. Many of these shields had wood wicker work or metal plates below the leather. There was a particular kind of shield used several centuries ago, called *pavois* or *tallevas*, of extraordinary dimensions, and borne by an attendant. This in sieges was interposed between the archers and the besieged. The most ancient and universal form of shields, in the earlier ages, seems to have been the triangular, vulgarly called the *heater shield*. Numerous instances of this are seen in the monuments and gems of antiquity. This was the shape of the Norman shields. The shield, though not entirely relinquished while the use of the long-bow and cross-bow continued, underwent some alteration in its form, the triangular shape gradually giving place to the circular or rectangular. They seem to have been used in affrays as late as the reigns of Elizabeth and James I. The target and broad-sword were the favourite arms of the Scotch Highlanders as late as 1746, and even later.

SHIELDS, NORTH; a sea-port town in the county of Northumberland, situated on the north side of the Tyne, at its junction with the German Ocean, 279 miles N. by W. from London. It has risen in modern times from a small village containing a few fishermen's huts, to a populous, well-built, and thriving town. The inhabitants are chiefly employed in the exportation of coals, and in the various trades connected with shipping, in respect to which it may vie even with Newcastle, upwards of four hundred vessels being annually laden at this port. The harbour is capable of containing 2000 sail of vessels, and at spring-tide ships of 500 tons burden cross its mouth in safety; ships of 300 tons burden can also load or unload at the quay. Population in 1841, 7509.

SHIELDS, SOUTH; a sea-port town in the county palatine of Durham, situated on the south side of the Tyne, at its confluence with the German ocean, 278 miles N. by W. from London. This place, like its opposite neighbour, enjoys all the advantages of trade and commerce, in common with Newcastle, particularly in the coal trade, for most of the larger colliers take in their lading at this haven, where 500 vessels are usually lying at one time. The inhabitants are chiefly employed in shipbuilding, in manufactories for all kinds of glass, soap-works, roperies, and various other trades. Population in 1841, 9082.

SHIGEMOONI. See *Lama*.

SHIITES (*heretics*); a name given by the Sunnites to all Mohammedans, who do not acknowledge the Sunna as a law. The Shiites believe that Ali, the fourth caliph after Mohammed, was his first lawful successor. The Persians are shiites. From them the sect of Ismaelites separated. See the article *Islam*.

SHILLING (Anglo-Saxon, *skylling;* Swedish, *skilling;* German, *schilling*); the name of a coin of very different value in different places (see *Coin*), the etymology of which is very uncertain. It appears to have been originally only a money of account in England, or the twentieth part of a pound; and, according to some antiquarians, the first English shillings were coined in the beginning of the sixteenth century.

SHILLOOKS. See *Sennaar*.

SHINGLES. See *Erysipelas*.

SHIP; a locomotive machine, adapted to transportation over rivers, seas, and oceans. As no human device is more worthy of admiration than the ship, so no investigation can be more curious than to trace, step by step, the slow progress of improvement, from the first rude attempt of incipient navigation, down to the perfection of modern times. And here, at the very threshold of the inquiry, our attention is arrested by a singular fact—the uniformity with which the human mind, prompted by the same desires, and aided by the same faculties, arrives at the same results. How small, indeed, is the difference between the canoe of the Esquimaux, framed of the bones of beasts and fishes, and covered with the skins of seals, and those in which the poets show us Dardanus fleeing before the deluge, or Charon conducting his trembling charge to the shades below; between those said to have been used in primitive times by the Egyptian, the Ethiopian, and the Arab, and the light barks of the early Britons, made of osiers and hides, which Cæsar imitated in Spain to extricate himself from the perilous situation in which he was held by the lieutenants of Pompey! In what does the canoe of the American Indian, of the islander of the south seas, and of the native African, differ from those which the savage Germans hollowed from a single tree, in the days of Pliny?

It is an old tradition, that the first idea of the canoe was suggested by a split reed, seen by some ingenious savage floating safely upon the billow. Be this as it may, there can be little doubt that the raft, as it is the most easy and obvious means of crossing the water, was likewise of most early invention. The savage who first ventured forth upon a solitary tree, that the river had brought within his reach, must have found his situation unsteady and precarious: his ingenuity suggested the idea of fastening several together, and the conveyance became at once a safe one. The earliest records which history affords on this subject, show the Egyptians traversing the Nile upon rafts. The Phœnicians also availed themselves of the invention; and we are told that many islands, even the remote ones of Sicily and Corsica, were colonized with no better assistance. This will seem less improbable, if we remember that the Peruvians still make sea voyages on their raft, called *balza*, from the spongy tree of which it is made. It consists of a number of logs tightly bound together, and strengthened transversely by beams. They are tapered at the prow, to facilitate the division of the water, whilst vertical planks, descending below the surface, prevent drift, and enable it to sail towards the wind. These *balzas* we have met in the open ocean, loaded with from ten to twenty tons of merchandise, and contending effectually with the trade wind, which prevails along the coast of Peru. This form of ship is not, however, always safe: lifted as the logs are unequally upon the waves, the thongs which bind them together, if old or neglected, sometimes break or disengage; the bark of the mariner disappears treacherously beneath him, or the logs, crashing rudely together, serve for his destruction. Yet the attempts of the uncivilized navigator do not always shun comparison with those of a maturer age. We find the native of North-western America, in his little skin-covered bark of admirable symmetry, venturing forth amid the most boisterous waves, which pass harmless over him, and outstripping the fleetest barge in his rapid course. The flying *proa* of the Ladrone islands sails towards the wind with unequalled nearness, and with a velocity far greater than civilized man has ever attained, with all the aids of philosophy.

It were a vain task to record the various fables connected with the origin and improvement of ships, though the inventors were esteemed worthy to take rank among the gods, and even the ships to be translated to the heavens, where they still shine among the constellations; how Dædalus invented the art of flying, to escape from the labyrinth of Crete—an allusion to the sails with which he eluded the pursuit of Minos; how Hercules sailed with the hide of a lion, which was only his well known garment hung up for the purpose; or how the first idea of the sail was taken from the poetic voyages of the nautilus; how Atlas contends for the invention of the oar, and how many heroes claim the honour of the rudder. These inventions all, doubtless, originated in the earliest dawnings of civilization, before there were any means of recording them; and the ascription of them to individuals may have formed the pastime of succeeding poets. It may not, however, be equally vain to inquire what was the nature of ships among those nations which made the first advances towards civilization. We find that the Egyptians, in improving upon the rafts and canoes which they first used, built vessels of stout joists of acanthus wood, which were made to lap over like tiles, and were fastened with wooden pins. The stoutness of the joist precluded the necessity of a frame except what was formed by the benches of the rowers. The seams were tightened by introducing the leaves of the papyrus. It could not have been long before ingenuity suggested the application of a natural agent for the relief of human toil; a mast of acanthus was raised, a papyrus sail suspended from it, and the rower rested on his oar, or only used it for the direction of his bark. In ascending the Nile, when the wind was either unfavourable or too light, the vessel was drawn against the current by men on shore, as Ali Bey describes to be still the practice. In descending, a hurdle or tamarisk was often let down from the prow, which, taking a deep hold of the stream, neutralized the efforts of the strong north-east wind, which a beneficent Providence sends to check the course of the stream and increase its height, at the season of the inundation. The early Egyptians did not, however, greatly improve upon this noble invention. Their peculiar prejudices, by confining them for many centuries to the navigation of the Nile, checked the progress of improvement. They had a horror of Typhon, as they termed the sea, because it swallowed that sacred river, which, being the great source of their happiness, they worshipped as a divinity. This horror extended to those who led a sea-faring life; hence the Phœnicians were not allowed even to enter the Nile. Driven to extend their voyages seaward, these mariners adapted their ships to the necessities of a more precarious navigation. Coeval with the Phœnicians, in the use of ships, were the inhabitants of China. But, situated as they are, in the neighbourhood of a circumscribed sea, surrounded by islands, and moreover, possessing, in their own resources, a supply for every want, discovery and improvement have long lain dormant there. It is believed,—and the fact is wonderful,—that the Chinese have floated down through thirty centuries in the same shapeless junk which now excites the ridicule of our seamen, and which they are yet unwilling to exchange for the improved models which daily pass them in their own seas, and continually force upon them the most humiliating comparisons. In the Chinese junk of our day we may, perhaps, see the counterpart of what the ship was in the days of the Phœnicians and of incipient navigation. Among the Phœnicians, Carthaginians, and Greeks, the earlier ships used in commerce were flat-floored, broad, and of small draught of water; the floor timbers were continuous at first, and they were without a keel, having instead a streak of wood on either side, to take the ground when stranding. Next, the keel was introduced, in order to diminish the drift with a side wind; and, to increase the strength, a keelson was soon added, overlaying the floor timbers and confining them to the keel; beams were also placed aloft, to hold the sides together and sustain the deck. The planking, which took its name, among the Greeks, from the garment which covers the human body, was firmly attached to the frame by means of iron nails, some of which passed through and were clenched within. When, however, the ancients discovered the tendency of iron to rot the wood, they substituted copper. To obviate the danger of starting the plank ends,—a danger still sometimes fatal to the mariner,—a piece of wood was let into both in the form of a dove-tail. Oak and pine, then, as now, were the woods most in favour; chestnut and cedar were also used, and to the last the Greeks gave the name of *everlasting wood*, though it was found not to hold well when nailed in the ordinary way, and to grow iron-sick; cypress, not being subject to shrink and cause leakage, was also esteemed, and elm wood was placed in such parts as were constantly under water. The Romans were very particular as to the season of felling ship timber; aware that there was much to be gained by attention to this subject, though mistaken as to the means. They would only fell between the fifteenth and twenty-third days of the moon's age, believing that when it was on the wane, the sap, which is the chief cause of early decay, descended: they were also attentive to the quarter from which the wind blew; in autumn it should be westerly, in winter north. To stop the leaking at the joints, lime and pounded shells were first applied: these being found soon to fall off, wax, rosin and pitch were advantageously substituted; flax was also driven into the seams, and leather occasionally used as a sheathing. A vessel of the time of Trajan, raised, after thirteen centuries, from the bottom of a lake, was found to have a bottom of pine and cypress, still in a sound state; her seams were calked with linen smeared with pitch, then sheathed with sheet lead and copper nails. Nor were the ancient vessels without ornament: the prow was especially decorated with paint and gilding, representing the forms of the gods; taking its name from the human face, its sides were called the *cheeks*. Its foremost extremity was usually carved into the representation of men and animals, or else formed a graceful curve; where it divided the water it was called the *goose*, from the image of that animal, placed there as an omen that the vessel should never sink. The distinguishing banner stood at the bow, representing a mountain, tree, flower, or other emblem: from this the name was usually taken, and conspicuously painted on a round piece of wood called the *eye*. The stern was sometimes carved in the figure of a shield, and elaborately decorated; upon a staff there erected, ribbons were hung, distinctive of the ship, and serving, at the same time, to show the direction of the wind: there, too, stood the *tutela*, or chosen patron of the ship; prayers and sacrifices were daily offered to it, and it was held so sacred as to offer a sanctuary to those who fled to it. Family considerations, patriotic partiality, or simple expediency, determined the selection of the deity; thus merchants committed themselves to the protection of Mercury, warriors to Mars, and lovers to Cupid and Venus.

The general form and size of the ancient ships varied with the progress of improvement, and with the warlike or commercial purposes for which they were constructed. The war ships of the Greeks were at first but row boats, with which they rushed upon the enemy and decided the battle by superior force and valour; in the course of time, this grew into the galley, which, being moved chiefly by oars, was of an entirely different form from the merchant ship.* Extreme narrowness, in connexion with great length, for the accommodation of many rowers, determined the form of the first, while the latter was constructed mainly with a view to capacity; hence the length of the galley was often six or eight times its breadth, whilst that of the merchantman was but four times; and hence, too, their distinctive names of *long ships* and *round ships*. The size of the earlier ships was necessarily inconsiderable, as they were drawn on shore at the termination of every voyage, and had but a single mast and sail of cloth, or at first of leather, managed with ropes of the same, or of bark, broom, or hemp. When, however, the keel was added, and the size increased, stranding became no longer practicable, and the anchor and cable were invented to confine the ship at a due distance from the land. At first, this useful machine was but a large stone; it was afterwards of wood and stone combined, and lastly of iron, having teeth; the largest anchor, called the *sacred*, was only cast in extremity. In the progress of enlarging their ships, there is no doubt that the ancients attained, at length, a size quite equal to the most monstrous of modern times. Even deducting much from the recorded size of the cedar ship of Sesostris, and the Isis of Ptolemy Philopator; or from the more wonderful ship which Archimedes constructed at the order of Hiero, with its wood for fifty galleys; its banqueting rooms, galleries, stables, baths, fish-ponds; its floors inlaid with scenes from Homer's Iliad; its temple of Venus, and many other wonders, the subject of a whole book;—deducting much from this as fabulous, or even rejecting the whole, there remains a testimony to the occasionally enormous size of the ancient ships, which it is impossible to evade. This is the account of the ship in which the largest of the obelisks of Heliopolis was removed to Rome. We are told that Augustus, having removed two, dared not venture upon a third, of still vaster proportions, which stood before the temple of the sun. The enterprise, which was too great for Augustus, did not deter Constantine, who ordered the enormous block to be removed to Byzantium. He died before this was done, and his son Constantius enlarged upon the idea, and undertook to convey it to Rome. In this he succeeded; for the obelisk, though weighing fifteen hundred tons, was safely erected in the circus of the Vatican, where it still stands. We read that, besides the obelisk, the vessel carried eleven hundred and thirty-eight tons of pulse; this undoubtedly was all placed towards one end of the ship, to aid the decreasing size and weight of the upper part in balancing the base. Thus we have a Roman ship laden with twenty-six hundred tons; the Santissima Trinidad could have carried no more. These enormous productions, like the obelisks themselves, owed their existence not less to the hardy genius than the despotic institutions of the times; that they were unmanageable masses, and were regarded in those times as monsters, may be gathered, not merely from their names of Cyclades or Ætna, but from the single fact that a ship of only fifty-six tons is instanced, by Cicero, for her magnitude.

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* For a more minute description of the galley, see articles *Galley* and *Navy*.

Such was naval architecture in the ages prior to the Gothic invasion, which drove this art, with every other, back into barbarity. We are told that the ships in which the Saxon pirates cruised in the German ocean, and invaded Britain, were made with a wooden keel, sides and upper works of wicker, and an exterior of hides. Though they may have improved somewhat on this primitive construction, yet it is certain that much of the previous advances in ship-building, the accumulations of many centuries, was forgotten, and to be rediscovered and tested anew. The brisk trade carried on in the Mediterranean, and the naval enterprises connected with the crusades, occasioned some improvements; yet the art advanced little, if at all, beyond the condition in which the Carthaginians left it. It was not until the middle of the fourteenth century that the inconsiderable war galleys of former times began to be superseded by larger vessels, in which oars were not entirely exploded, but which were chiefly moved by sails. These were crude enough; of crooked, half-moon shape, very high at the stem and stern; the planks nailed with iron, not set edge to edge and calked, but overlapping. They had usually but one mast, never more than two, with square sails attached to yards, and were only capable of advancing with a favourable wind. What a contrast between these rude machines and the noble production now called a ship, in which art and science are exhausted, the result of the gradually accumulating improvements of many generations! Sir Walter Raleigh well says, "Whoever was the first inventor of ships, every age has added somewhat to them; and in my time they have been greatly bettered. It is not long since striking the top-masts has been devised, together with the chain pump, which taketh up twice as much water as the old one: we have now studding sails, and the weighing of anchors with the capstan; moreover, we have fallen into consideration of the length of cables, and by it we resist the malice of the greatest winds; for true it is that the length of cable is the life of the ship."

Ship-building made, indeed, but a snail-paced progress until the introduction of the compass; and the application of astronomy to nautical pursuits at once set the mariner free from dependence on the land. The discovery of America resulted from these improvements and the inspiration of a single man. Thenceforward the mariner, thrown upon the wide ocean, was brought into contact with unknown perils, and to obviate them was led to untried expedients. The art has since strode forward with giant steps. To the Italians, Catalans, and Portuguese, belong most of the advances in the earlier days of its revival; the Spaniards followed up the discovery of the new world with a rapid improvement in the form and size of their ships, some of which, taken by the cruisers of Elizabeth, carried twenty hundred tons. In modern times, to the Spaniards and French belongs the entire credit of the progress which has been made in the theory of the art. Strange as it may seem, few improvements have originated with the greatest naval power of this or any other time. We have the authority of our own authors for the singular fact, that Britain has added little to the beauty, speed, and excellence of ships, the wooden walls to which she is indebted for her security. In America, ship-building has made unprecedented progress; with, however, little aid from theoretical principles and abstract science. And hence it may well be questioned, whether a blind attachment to arithmetical results—modified, as they must be in practice, by many causes escaping calculation—does not often serve to sanction error. The example of builders sufficiently proves that the artist, guided by experience and a practised eye, may dispense with elaborate theories; which, after all, are but the demonstration and systematic utterance of ideas which already exist in the untutored mind, and are daily acted upon. Experiment, though it may gain something from theory, is the only infallible guide.

In order to appreciate the extent and value of modern improvements, we have only to refer to the figure of the old ships, preserved in pictures of the most famous, and which may be found engraved in Charnock's valuable work on naval architecture.

There we see the Great Harry, the wonder of the sixteenth century, a most terrific looking monster. Her bow and poop are of prodigious height, the signal lantern on the latter being nearly level with the round tops. She has an immense beak, with bow and stern balconies; six round towers at the angles of the poop, gangway, and forecastle, like the turrets of a chateau; four masts, with tops literally round, like inverted cones, and abundance of streamers from every spar. Even at the beginning of the seventeenth century, a vessel constructed by the duke of Northumberland, a schemer of that day, and then esteemed a miracle of perfection, measured fifty-four feet more on deck than at the keel, and was thirty-three feet high at the bow, fifty-one at the stern, and only twenty-eight in the middle. It is true that, very shortly after, a ship, launched in England, and called the Royal Prince, was very little different from those of our day, except that she was every where encrusted with carved work and gilding. Yet this is a solitary and uncopied example, for builders still clung pertinaciously to their inequalities, excrescences, and inflections, down to a late period of the last century. Indeed, in most nations of Europe, a high poop and inflected topside are still partially continued, though no longer to the extravagant degree which characterized the fashion at its height, when it was not unusual to see a ship taper upwards to half her extreme breadth. In the United States of America alone is this custom entirely abolished, experience having shown, what theory may also demonstrate, that it is vicious in every respect; that, while nothing can be urged in favour of *tumbling in*,—as it is well called,—but that it brings the guns nearer the centre, and hinders the smoke of the lower from incommoding the upper decks, it adds greatly to the difficulty of draughting, and the expense of timber and construction, at the same time taking from the spaciousness of the upper deck, increasing the crankness of the hull and the insecurity of the masts, by allowing no spread to the shrouds which support them. The long-established custom, too, of making the deck rise into a little mountain abaft, with the sole view of accommodating the commander and other great men with better quarters, has been as little respected in that republican country. They have reduced the whole topside to one uniform, unbroken level. Hence there are no obstructions to catch the wind; and, moreover, the vessels, being lighter at the extremities, pitch and perform their vertical motions with more ease. Hence, too, they are less exposed to camber, or become broken-backed,—a bending downwards of the extremities, which takes place in all vessels, more or less, at the moment of launching, and which is promoted when at anchor by the downward pressure of the cables, and at all times by the unsustained gravitation of the extremities, from their extreme sharpness, counteracted at the centre by the accumulating pressure of the resisting fluid in an upward direction. The American schooner—a model peculiar to that country, is of the simplest form, carrying the greatest breadth before the centre; the bow is very sharp, and the draught forward inconsiderable, but increasing towards the stern, where it becomes double. With great length and breadth, furnishing stability to bear a large surface of sail, and great depth to take hold of the water and prevent drifting, the burthen and consequent displacement of the schooner are inconsiderable, a large part of the bottom consisting of mere dead wood. Above water, her form is straight, low, and unbroken, offering no obstacle to the wind; the masts are long and tapered, and the sails, like the body, adapted to approach the wind, which the schooner does within forty or forty-five degrees, just twenty degrees nearer than the best equipped frigate; and she will sail in moderate weather as fleetly by the wind as from it. Unless, indeed, in gales, when her excessive speed, in conjunction with her wedge-like form, tends constantly, as she runs over the water, to raise the bow, and, by counterpoise, to depress the stern, to the danger of being overtaken by a pooping sea, the schooner going large is also victorious. It may be possible, in smooth water, with a vessel like the flying proa, or with a double boat of capacity to bear a single man, to surpass the speed of the schooner; but not with any vessel capable of traversing the sea, whether moved by natural or artificial agents. If it be considered that, in doubling the velocity of a body moving through a fluid, that body not only impinges on twice as many particles of the fluid, but on each of them with twice its former force, so that the resistance increases as the squares of the velocity, it may well be wondered how a speed of twelve, thirteen, and even fourteen sea miles the hour, has at length been attained.

Let us now proceed to the leading object of this article—to give an idea how, in our day, a ship is built, masted, rigged, and, finally, manœuvred; premising, simply, that it is not so much our desire to suggest new notions to those who are familiar with the subject, as, in accordance with the plan of this work, to convey a plain yet palpable idea to those to whom it is yet a mystery. The nicest and most difficult operation in ship-building consists in forming the draught. This is done, in Europe, by representing the form of the proposed ship in three distinct points of view. The first is called the *sheer plan*, and gives a complete view of the side: here are represented the length, depth, rake of the stem and stern; the wales, waterlines, decks, ports, masts, and channels. The *body plan* shows the breadth, having described upon it every timber composing the frame of the ship; those running from the place of greatest breadth forward being described on the right hand; those running aft, on the left. Lastly, there is the *half breadth*, or *horizontal plan*, showing the whole as if seen from above. To construct these draughts is exceedingly intricate and laborious; and, when finished, they convey no very clear idea of the intended ship. The American builders have a very different mode, very easy and satisfactory. They begin by making a wooden model of the proposed construction, the thing itself in miniature. Here the length, breadth, bulk, all the dimensions, and most minute inflexions of the whole, are seen at a single glance; the eye of the architect considers and reconsiders the adaptation of his model to the proposed object, dwells minutely on every part, and is thus able to correct the faults of his future ship, at the mere expense of a few chips, and while yet in embryo. We shall now state what are the essential qualities of a good ship, and how they are attained. In a ship of war, the great object is speed, connected, as far as may be, with ease of movements, and capacity to accommodate her crew and carry a large supply of water and provisions. One point, moreover, is especially to be looked to; this is, that the ship float sufficiently high above water to run no risk of receiving seas in her lower ports in time of action. In order to be secure of this, the constructer must make an estimate of the whole weight of the ship, including body, spars, armament, men, and munitions, and must so model the bottom that it will have displaced an equal weight of water when arrived at the desired depth. But in the merchantman, of which we now particularly speak, the primary consideration is, to attain the greatest capacity to carry cargo, combined, as far as possible, with safe and easy movements and rapid sailing. Now, the only way to combine these qualities with any success, is to imitate a form which has stood successfully the test of experience. This the builder does when he forms his model, guided by a tasteful and accurate eye, accustomed to notice the forms of vessels, and to mark particularly those which have been distinguished for their good qualities.

Among the admitted and well established principles of construction, is the leading one, that the greatest breadth must always be before the centre, and consequently the bow be more blunt than the stern. Some of our best builders place this point only one third of the length from the stem. Abstractly, it would seem most important that the bow should be adapted to divide the water with the least possible resistance; but experience has proved that it is far more essential to facilitate the escape of the displaced water along the side of the vessel; for when once a passage is opened for the ship, the fluid tends to re-unite abaft the point of greatest breadth, where, instead of offering resistance, it presses the ship forward, in its endeavour to recover its level and fill the vacuum constantly opening behind her. Without recurring to Sir Isaac Newton for the demonstration by which he has shown the mathematical truth of this principle, it may be sufficient to instance the fact, familiar to every seaman, that a log tows infinitely easier by its bigger end; nor do we find a trifling concurrent testimony in the forms of the finny tribe, which an unerring nature has adapted to divide the element they move in, by a shape gradually diminishing from head to tail. As it is, then, less essential that a ship should be sharp forward than aft, there is a further advantage in having the bow full towards the edge, that it may check her in descending into the waves, not abruptly, but gently; pitching being the most dangerous to hull and spars of all a vessel's movements. Though sharpness towards the sternpost is vitally essential to fast sailing, yet care must be taken to leave the buttock full towards the surface, in order to check the stern gently in descending, and, when scudding before a gale, to lift it in timely season, on the arrival of a sea. To hit the exact mean in this respect, so as not to retard the sailing, on the one hand, nor, on the other, to endanger the safety of the ship, requires all the skill of the architect. The midship floor should be nearly flat, in order to render the ship buoyant and stable, or capable of bearing sail. It has been suggested that, since stability is in proportion to the length, an elongation of ships might be productive of increased speed; but, though they would thus be enabled to carry more sail without an essential increase of resistance, yet it may well be questioned whether this advantage would not be more than compensated by the corresponding increase of difficulty in turning, manœuvring, and rising to escape the breakings of the sea. There must also be a loss of compactness and strength proportionate to the increase of length, so that such vessels may be only adapted to the smoothness of a lake, or to the purposes of privateers and smugglers, who are desirous to procure rapid movements at whatever sacrifice. An increase of breadth may produce equal advantage without any sacrifice; for, inasmuch as stability increases as the cubes of the breadth, by adding one quarter to the breadth you gain a double stability, and, by consequence, a capacity to bear twice as much sail, with but one fourth of increase in the resistance. If it be remembered that the pressure of the water increases in descending from the surface, and that from this cause and the augmented difficulty of displacing it, the resistance offered to a ship in advancing, is three times as great at the lower as at the upper half of the immersed section, there can be no doubt that, if the law for measuring tonnage left his dimensions optional to the builder, the excess of depth now used would be transferred to the breadth. This being the case, it is deplorable that our government should so long have retained the old rule for the measurement of tonnage. This takes only into consideration the length and breadth at a single point, and, consequently, furnishes no standard whatever to judge of the capacity: hence, the merchant may have his ship made as deep as he pleases, and carry her breadth down to the floor itself, without any increase of tonnage: and one of three hundred tons may be thus made to carry three times as much as another of equal measurement, formed for speed and beauty. Now, as a ship's port charges are determined by her registered tonnage, this is a direct bounty for building ugly and disproportioned ships, and an equally direct tax upon every digression from the model of a bread-tray. Great detriment to the appearance, speed, and safety of our freighting ships results from this absurdity. But to return to our subject; an extreme in breadth, as in length or depth, is also dangerous. All extremes are here to be equally avoided. In civil architecture, an extravagance may be an eye-sore to men of taste, and render the projector ridiculous; but in naval, it too often proves fatal to human life.

Keeping, then, all these principles in view, as far as the tonnage law and the interests of the merchant permit, the builder proceeds to form the half model of his proposed ship, making it of the usual relative dimensions (a quarter of an inch to the foot). When satisfied with his performance, he takes asunder the horizontal sections of plank of which the block was originally formed, and he has before him all the waterlines in miniature. Having marked these on the floor of the moulding loft, he has all the necessary data, and proceeds to draught the entire frame. This done, pine moulds are formed of all the different parts, and the preparatory labours are complete. The scene now changes from the moulding loft to the ship yard, and the builder turns his attention to the materials The timber most in request is oak, pine, chestnut, locust, cedar, elm, beech, &c. The felling and choice of timber is in itself an art. The tree should be taken in the second era of its growth, when it has attained maturity, without approaching the period of decay. It should be killed, by removing a ring of bark, at the beginning of winter, when the sap is down, and left to dry and harden before it be cut down. When felled, the timber should be carefully stored in some dry, airy place, not much exposed to wind and sun. Painting should not be used, as, by sealing up the moisture in the wood, it rather facilitates than prevents decay; smearing with oil or tar, when well dried, is not so open to objection. In collecting ship timber, the greatest difficulty is found in procuring the crooked sticks, of which so many are required. In countries where timber has become an object of careful cultivation, this difficulty is anticipated by bending and confining the young trees to the desired form, or by cutting their young shoots at different periods, it having been observed that pollard trees are thus naturally produced by the browsing of cattle. The timber being collected, the workmen, with each his mould, proceed to fashion the pieces of wood assigned them, a due regard being had to careful conversion, that no stick is hewn contrary to its grain, so as to impair its strength, nor a larger one ever used than is necessary for the particular purpose; and, especially, that no bad or even indifferent wood be put in an important place, whence it could be removed only with difficulty.

The frame being now ready, we proceed to put it together. And first, the blocks are placed in the slip, and the keel laid upon them, the pieces being snugly scarfed together, and bolted; the keel is also scarfed to the stem forward, and the stern-post aft, the apron being raised with the stem, and the transoms and fashion pieces with the stern, if the vessel be not large. In laying down the keel, great care must be taken to preserve its perpendicularity, for which purpose it is pinned with treenails on either side of the blocks; also in raising and propping the stem and stern, and every piece of the frame. It is only by extreme attention that the builder avoids producing a crooked ship—an artificial monster of by no means rare occurrence. The floor timbers are now let into the keel, and every other one is there firmly bolted and riveted; they are crotches of trees formed by the trunk and one of the branches. Hence, in order to have equal strength on both sides, the butts should be placed alternately to right and left. As the floor timbers are the great connecting principles of the ship, to which they bear the same relation as the ribs to the body, too much care cannot be taken in selecting and securing them. The dead wood which fills up the angles at the stem and stern being got in, the kelson is laid upon the floor timbers, which let into it, until it rests upon the keel; its pieces are scarfed together, and to the stemson and sternson, which forms its prolongation up the stem and stern. A bend usually consists, besides the floor timbers, of four futtocks, and one top timber, on each side; the first, or lower futtock, descends to the keel, beside the floor timbers, to which it is either bolted or pinned with treenails; the heel of the second rests upon the head of the floor, and bolts to the side of the first; and so on up to the top timber. Towards the stem and stern, the timbers do not meet the keel at right angles, but are inclined respectively forward and aft, as well to economize timber, by adapting the sticks to the inclination of the curves, as to augment the strength of parts much exposed to shocks from waves, rocks, and icebergs. The different portions of the frame are thus raised to their places by sheers and tackles, and then carefully shored and kept to the proper breadth by cross-pales; ribbands are also carried round the frame and bolted, and every precaution taken to confine each separate part to its particular position. The frame, being now complete, is dubbed smoothly off within and out, preparatory to planking. Sometimes the frame is made completely solid, and calked; in this case, the interior covering of plank is dispensed with, excepting a few strengthening streaks. This method has many advantages; a little additional width to the timbers brings them in contact, when, besides their being naked, and exposed to the air within, there is no space for the generation of those destructive gases which cause dry rot. In this case, salting, which makes a ship damp and unwholesome, is also avoided.

Having advanced thus far in the construction, the next care is to proceed with the planking, which does not merely serve to exclude the water, but to protect, connect, and bind harmoniously together, and is quite as essential as the skin to the body. Though apparently the most simple part of this wonderful machine, it is yet very difficult. Just as, in draughting the frame, it is necessary to have in view all the ports and scuppers to be carried clear of the timbers, it is essential, in planking, to have a preconcerted plan of the whole. The butts must not come near the scarfs of the keel, nor beside each other within or without, nor near the port-holes, nor opposite the pumps, lest the oakum be sucked out, but must be judiciously distributed, so as to impart equal strength to every portion. It is also one of the nicest arts of the builder, so to carry up his planking as with little waste to keep his seams always fair with the waterlines. When it is necessary to bend a plank at the bow or stern, it is heated by steam, and then forced into place with screws and levers. While this is going on, the beams are erected and pillared on the inside planking; the knees, which are crotches of timber or iron, confine them to the sides, also the transoms at the angles of the stern; in like manner the breast-hooks hold the stem to the planking and cant timbers of the bow. All this being attended to—the decks, plank sheer and rails finished, pumps placed, the bits for securing the cable, the capstan for raising the anchor, or, instead of these, the windlass, which, in merchantmen, more commonly serves the double purpose, the catheads for suspending the anchors, hatchways, mast holes, and a variety of other objects, which, though too many to enumerate, must by no means be forgotten—all being complete, the carpenter makes room for the calker, who carefully stops all the seams with oakum, and smears them with pitch. The scraper follows the calker, and, water having been pumped into the hold, to ascertain whether there is any leak, the bottom is ready to be sheathed or coppered, to protect it from the worms. Sheathing with wood is practised with iron-fastened ships, because copper would cause the bolt heads to corrode, if placed against them. It consists simply in covering the bottom with pine boards, sheets of paper soaked in hot pitch being placed between. In sheathing with copper, paper is also interposed. The plates overlap each other from bow to stern, to prevent their being stripped off by the continual shock of the passing water.

Our ship is now ready to be launched. This is the triumph of the builder. It is a nice operation, and is thus performed: If there be no ways in the slip (which is always an inclined plane descending into the water), they are immediately prepared. Two parallel platforms of solid timber are laid, one on each side of the keel, at the distance of a few fect from it, and extending from the stem as far below the stern as can be reached at low water. In this position they are carefully and firmly blocked and supported throughout their length. This double platform is called the *ways*. Upon it a second system of timber is loosely laid, and well greased between. The space from these last to the ship's bottom is every where filled with wedges of soft wood fashioned to its curves. The whole is called the *cradle*. The extremities of the cradle at the bow and stern are bound tightly across the keel with chains or ropes, and it is further kept from spreading by stout mouldings, which overlap the outer edges of the ways. When the rising tide has reached well up the ways, the wedges are simultaneously driven on every side, and the ship is raised from the blocks on which she has hitherto rested, and made to repose entirely on the cradle. The shores are all removed except the two spurs planted against the counters, and when the proper moment has arrived, these are also knocked away. The vessel, now abandoned to her weight, and encouraged by the yielding of the grease, begins slowly falling along the inclined plane; her motion becomes at each moment more and more rapid; the ways smoke and ignite with the pressure and velocity of the moving mass; and, in a twinkling, the noble fabric has abandoned for ever its union with the land, and entered, careering and joyous, upon its destined element. Among the ancients, a launch was ever an occasion of great festivity. The mariners were crowned with wreaths, and the ship bedecked with streamers and garlands. Safely afloat, she was purified with a lighted torch, an egg, and brimstone, and solemnly consecrated to the god whose image she bore. In our less poetic times, there is no lack of feasting and merriment, though, instead of the torch, the egg, and the brimstone, the oldest sailor breaks a bottle of rum (unless, indeed, he may have slily substituted water as more appropriate to a christening) over the head of the emblem—still, perchance, the image of father Neptune or Apollo.

The moment the ship leaves the land, the builders cease to be competent to her control, and she passes at once to the hands of the seamen. Before launching, the sailors stationed on deck hasten to attach a small cable to some object on shore, and have it clear on deck for veering out; a small anchor, with a second cable, is also prepared to drop on the bottom. By means of this apparatus, when the velocity gained in descending the ways has declined, the ship is gradually checked, and at length drawn alongside of the wharf, which is to be the scene of her equipment. And now, while she is yet light and high out of water, is the most favourable time for shipping the rudder. The rudder is a machine placed at the stern of the ship, by means of which she is steered and turned about at pleasure; for by inclining it to one side, the passage of the water is there strongly opposed, which, checking the advance of that side, gives the other a rotatory motion around it. It consists of two or more pieces of timber, of the thickness of the sternpost, of which, when not inclined, it seems a continuation. Narrow at the water's edge, where it might be endangered by the shock of a sea, and with it the very existence of the ship, it gradually increases in width towards the keel, where, from the nearly straight line in which the water reaches it, it exerts a more direct power to turn the ship. From forty to forty-five degrees is the most favourable angle for it to make with the keel, a greater serving rather to retard velocity than to cause rotation. To ship the rudder, it is only necessary to attach weights of iron to the heel, so that they may be loosed afterwards, and then sink it behind the sternpost, guiding it with ropes to the rudder port, through which it is hoisted by means of sheers and tackle placed above. The pintals having caught the hinges or gudgeons on the sternpost, it is abandoned to their support, while a chock, placed above the upper pintal, prevents it from being unhung. A tiller, with ropes and a wheel, to turn the rudder, completes the steering apparatus. Before raising the masts, it will now be well to take in ballast, especially if the ship be sharp. In every merchant vessel, it is a good rule never to be without a small quantity of copper dross or shingle. And next, the sheers are got ready. They are two stout spars, having the large ends at the sides of the ship, the small ones being lashed firmly together, and overhanging the middle of the deck. They are lashed and rigged with guys and gantlings before being raised; the ends rest on the tafferel, and the tackle to be used in hoisting in the mast, being taken forward to the windlass, serves to raise them. If it be necessary, a small pair of sheers are used to lift the ends until the angle be sufficiently open to give power to the purchase.* When erect, they are first placed over the hole for the mizzen-mast, and, if the ship be large, the deck should be shored up, to relieve it of the weight of the sheers and mast. Overhauling your tackle down to where the mast is on the wharf, or in the water, you lash the lower block securely to the front of the mast, just above the centre of gravity. With this, and a smaller tackle or gantling to the mast-head, the mast is taken up abaft the sheers, until high enough, then lowered to its place, the step being tarred, and a piece of money thrown in for luck. The sheers are easily moved forward by their guys and tackles, the shoes in which their heels rest being greased, to slip over the deck. In this way the main and fore-masts are likewise taken in, and, the sheers being drooped over the bows, lastly, the bow-sprit.

There are various rules for sparring ships, all founded upon their length and breadth, which are the main elements of stability. It may be sufficient to name one simple rule for the length of the main-mast, this being the prime mover: Add the length at the load water-line to the main breadth, and take the half sum as the length of the mast. The top-mast may be three fifths of the lower mast, the main yard seven eighths of the same, and so on upwards. The fore-mast may equal seven eighths of the main, with upper masts and yards in proportion. The mizzen-mast, if stepped on the kelson, is five sixths of the main-mast. The best rules on this subject are, perhaps, found in tables accurately prepared, in which the lengths of the masts are given in fractions of the ship's breadth, and those of the yards in fractions of the length. For the rest, it will be, in most cases, necessary to modify any given rule, in all instances, with immediate reference to the particular model of the ship, and to the uses for which she is destined. A vessel of war will have spars to spread sail to the full extent of her stability, while a merchantman will be sparred with reference to the limited force of her crew. As for the disputed advantages of long or short lower-masts, we agree entirely with Sir Cloudesly Shovel, who says, with equal wit and wisdom, "I mightily esteem short lower-masts; for, the shorter they are, the longer they will stand." With long top-masts you may make up an equal or even greater surface of canvass, far more advantageously spread, and more manageable, while it is procured at less expense, and with less weight aloft. It would be, moreover, an advantageous improvement in merchant ships, not sparred to the extent of their capacity, to make the fore and main-masts, in all cases, of equal dimensions. With improved appearance, they would have all the respective spars and sails, except the courses, answering equally for both masts. This would enable them to go to sea with fewer spare ones, or to derive more advantage from the usual number. In small ships, all the spars are of single sticks of pine timber, which, for equal contents, are always stronger; but, for ships above six or seven hundred tons, it is impossible to procure single trees sufficiently large; and then it becomes necessary to resort to made masts (so called), which are of oak and pine, very artificially put together, and bound with stout hoops of iron.

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* There is a variety of forms of rigging—ships, brigs, brigantines, schooners, sloops,—but we shall only notice the most esteemed form, called the *ship par excellence*.

The spars of a ship are not abandoned to their own unsupported strength, but are sustained by what is called the *standing rigging*. This consists, for the bow-sprit, of gammoning and bob-stays, confining it down to the stem, and shrouds, which sustain the immense lateral pressure which it endures when on a wind. The jib-boom and flying-jib-boom are, in like manner, supported by means of martingales and guys. The fore-mast is supported by three or four pairs of shrouds on either side, which set up to the channels, and by two stays led forward to the bowsprit. The fore-top-mast is supported by shrouds setting up in the top, back-stays descending to the channels, and stays leading to the bowsprit end. The top-gallant and royal-masts have also their shrouds setting up through the cross-trees, their back-stays descending to the channels, and their stays leading to the jib and flying-jib-booms. In like manner are the main and mizzen-masts supported, except that the main-stays set up on deck beside the heel of the bowsprit, the main-top-mast-stays at the head of the fore-mast, the main-top-gallant-stay to the fore-top-mast-head, and main-royal-stay to the fore-top-gallant-mast-head. The mizzen-stay also sets up beside the main-mast, and the same in ascending. The running rigging consists of the tacks and sheets that serve to spread the sails, the halyards, traces, lifts, clewlines, and all other ropes used in making, taking in, or manœuvring the sails.

The sails of a ship are square sails bent to the yards, and fore and aft sails traversing on stays or bent to gaffs. Let us describe an entire suit, beginning forward: On the extremity of the bowsprit is the flying-jib, a three-cornered sail, which goes from the end of its boom upward along its stay, leading to the fore-top-gallant-mast-head, and confined to the stay by rings of wood or iron, called *hanks*. It is hoisted by means of halyards, hauled down by a downhaul; and, when up, is trimmed to hold the wind by a sheet leading to the forecastle. The jib, which leads from its boom to the fore-top-mast-head, is of similar form, and so is the fore-top-mast-stay-sail, running from the bowsprit end towards the mast head. On the fore-mast we have the fore sail, bent to the fore-yard, and spread at the foot by means of tacks and sheets; above it, the fore-top-sail, bent to the top-sail-yard, by means of which it is hoisted aloft, while its lower corners are spread to the extremities of the fore-yard; next the top-gallant-sail, bent to its yard, and sheeting home to the top-sail-yard; and so with the royal and sky-sail. All these sails are turned at pleasure, to be presented to the wind, by means of braces attached to their yard-arm, and leading to the main-mast. The main-mast is furnished with a similar suit of sails, somewhat larger; the mizzen, also, though smaller than either; instead of a square-sail on the lower mast, it has a gaff-sail, hoisting up and down abaft the mast. Some ships have similar gaff-sails on the fore and main-masts, which are found of great use in gales of wind, as a substitute for storm stay-sails. Most carry, also, light stay-sails between the masts; but they are very troublesome, and worse than useless. Studding-sails, or *wings*, as they are better called by the Spaniards, spread without the square-sails when going large, and are very useful. The perfection of equipping a ship with spars, rigging and sails, consists in so disposing them, that, in a whole-sail breeze, the centre of effort of all the sails will be in the same line with the ship's centre of rotation; or that the efforts of the forward and after sails to turn the ship will be so exactly balanced as not to require any continued assistance from the rudder in either direction; for this, while it impedes her progress, does not leave the entire force of the rudder disposable, when necessary to turn. Of the two evils, however, seamen have more patience with a ship disposed to approach the wind, than with one needing the continued action of the helm to keep her from falling off. The French helmsmen well characterize these two qualities by calling a vessel which has the first *ardent*, the latter *cowardly*. Like, however, cool courage, between impetuosity and cowardice, a midship helm is still the golden mean.

Our ship is now completely equipped, and ready to receive cargo. Those articles with which a ship may be filled full are stowed with a single view to economy of space. Some, as cotton, require ballast; others, as staves, or sugar and fluids, require none. When the articles are heavy and light, the heavier are placed nearest the bottom, to increase the ship's stability. When, however, all are heavy, there may be danger of making a ship too stiff; so that, not being balanced, she will roll violently, and, perchance, risk the fracture of a mast, or even spring a leak. To obviate this danger, the cargo should be raised: if iron, some should be stowed between decks; if coal or salt, it may be heaped up in the centre, taking care to secure it against shifting, should the ship be knocked down by a sea or squall. Heavy articles should never be placed towards the extremities, lest they promote pitching. In all cases, care must be taken to preserve the trim of the ship—that just proportion between her draught forward and aft, which the estimate of the builder, or, when a voyage has been made, experience itself, has determined to be most favourable to rapid sailing.

The ship, being ready for sea, is usually dropped into the stream or roadstead. There she is confined by an anchor and cable passing through the hawse-hole at the bow, and clinched round the bits or windlass. As a vessel thus anchored is free to swing round at the will of wind and tide, she is liable to wind her cable round the anchor, and thereby entangle and change the position of its flukes so as to incapacitate it for holding her. To obviate this inconvenience, it is usual to moor with two anchors, one placed in the direction of the flood, the other of the ebb tide. If there be no tides, the anchors are opposed to the prevailing winds, the heaviest being towards the most windy quarter. Should a gale occur while thus moored, by veering out the cable which holds the ship, both may be brought ahead to act in concurrence. Care must ever be taken to keep the hawse clear for thus veering, that is, to prevent the ship from twisting her cables, by turning always the same way; or, when this unavoidably occurs, the hawse must be cleared by unbinding one of the cables, and carrying it round the other beneath the bow, until the turns be removed.

When about to sail, the hatches are carefully calked down and tarpaulined, except those necessary for the ascent and descent of the crew, and the boats are stowed. You may now unmoor, preparing the first anchor for letting go before taking up the second. If tending to the tide, with the wind fair to pursue your course, the last anchor may also be taken up and stowed before making sail. If, however, as is usual, your ship lie head to wind, stop heaving in when the cable is short, and proceed to make sail. The wind being moderate, the courses, top-sails, top-gallant-sails, jib and spanker may be loosed together; the top-sails and top-gallant-sails are sheeted home and hoisted up; and the other sails hang ready to be called into action whenever necessary. The yards are now braced ready to cant the ship. If you wish her to go to the right, the head yards are braced with their right sides forward, and the afteryards the contrary way. Hence the wind, striking the fore sails obliquely on the left, tends to force them to the right; and, on the contrary, the after sails, being acted upon in an opposite direction, are forced to the left; but the fore sails are forward of the centre of rotation, while the after sails are abaft it; consequently the efforts which they respectively exert will tend, the first to force the ship's head to the right hand, the others the stern to the left. The sails thus trimmed, now heave up the anchor, profiting of the trifling advance through the water to turn the ship's head still more, and make the angle of the wind with the keel more open, by the action of the rudder. As soon as the anchor trips, and the wind begins to force the ship sternward, shift the rudder to the opposite side, that, by offering an obstacle on the left of the ship, the right side may turn backward round it more rapidly. This action of the rudder, in conjunction with the sustained effort of the sails to turn the ship to the right, and, presently, the addition of the jib, will gradually make the wind more and more open on the left bow, until at length it becomes sufficiently so to fill the after-sails, which have hitherto lain aback. When this is the case, the fore yards are braced full, the spanker and courses set, and the ship immediately begins advancing. This mode of weighing is practised where there are other ships or a shore to leeward; otherwise it is more common not to hoist the jib, or fill the fore sails, until the anchor is raised to the cat-head. The ship being under weigh, the time occupied in clearing the harbour is employed in stowing the anchors, unbending the cables, if the nature of the coast render it safe to do so, applying mats to the rigging and yards, to prevent chafing, and in securing the boats, water-casks, and whatever other movable objects might be in danger of starting by the pitching and rolling of the ship.

Our ship is now at sea, and it only remains to us briefly to explain the manner in which she is propelled and governed, and made obedient to her crew. There is no difficulty in conceiving how a ship may be made to move before the wind through a quiescent fluid like the sea. Let us suppose one at rest in a perfect calm, and equally pressed on every side by the gravitating action of the same fluid: she is maintained in equilibrio. But, by and by, a wind rising behind her, strikes her sails perpendicularly, and exerts a pressure in a single direction. As, however, the sails are attached to spars, and these in turn to the ship, it is evident that they cannot obey the impulse independently of the ship, but that all must move in unison; and the ship, being before pressed by the water equally, and maintained in quiescence, requires but a slight additional pressure in any direction to destroy her equilibrium. This pressure is abundantly supplied by the air of our atmosphere; for, though little more than a thousandth part the density of the sea, it may receive a velocity enabling it to strike the sails with its particles in such quick succession as to force the ship forward with great rapidity, and, if the resistance of the water check her escape before it, may even act with sufficient power to blow away the strongest sails, or even tear the masts out. Thus a beneficent Nature, in providing an element essential to our existence, by subjecting it to laws requisite for its healthy preservation, and forming a necessary link in the universal economy, has at the same time supplied an ever-active agent, which the ingenuity of man—an emanation of the same great Intelligence—has rendered subservient to the noblest purposes.

Conceiving, now, how it is possible for a ship to move freely before the wind, with a velocity determined by the force of that wind, the quantity of sail exposed to it, and the adaptation of her form to divide the sustaining fluid with the least resistance, we will now show how it is also possible for her to move in directions other than directly before the wind, and even to approach it. Let us suppose that the wind, at first dead aft, gradually veers towards the side, until it blows at an angle of forty-five degrees with the keel. If, with the wind thus blowing, I still preserve my sails braced perpendicularly to the keel, it must necessarily strike their surfaces obliquely, dividing itself into two forces, one passing off to leeward, the other exerting itself in the direction of the keel, and therefore tending to propel her forward. If, however, in order to expose my sails more fairly to the wind, I brace them forward until it becomes again perpendicular to their surfaces, the action of the wind on the sails is simple, but that of the sails on the ship is in turn, compound, subdividing itself into two forces; one acting to drive her to leeward in a direction perpendicular to the keel; the other, forward in a line with it. If, now, the ship were of a figure to move with equal freedom in any direction—round, for instance—it is evident that she would assume a mean motion between these two forces; but, being so formed as to divide the water with infinitely greater difficulty sidewise than forwards, the force exerting itself perpendicularly to the keel is neutralized, whilst that in a line with it, encountering an inferior resistance, compels the vessel to advance. We will next suppose the wind to have drawn forward until perpendicular to the course. The sails, being trimmed forward, so as to keep full, are struck obliquely, and if the ship were again free to move in any direction, would impel her in a course perpendicular to its surface; but the portion of this force tending to drive the ship to leeward, being again encountered by the lateral pressure, is almost balanced; while, on the contrary, she freely obeys the force tending to propel her forward. Lastly, let us consider the situation of our ship when the wind gets before the beam, so as to make an angle of less than ninety degrees with the course. It is evident that, if she still continue to advance, it must be towards the wind: this seeming paradox of a vessel approaching the wind by the very effort of that wind to drive it away, will still appear clear by the application of the same principles. To meet the emergency, let us now suppose the yards braced forward, until they make an angle of only thirty degrees with the keel; the wind, being thirty farther aft, will make an angle of sixty with the keel. In this position, the wind will strike obliquely on the after side of the sails; and though the greater part of the force passes off to leeward, there is still a partial effort to drive the sails in a direction perpendicular to their surface. This effort subdivides into two forces; one perpendicular to the keel, the other in a line with it: the first is nearly overcome by the lateral resistance; the second, encountering less, causes the ship to advance, with a velocity proportioned to the smallness of the angle of incidence, and the disadvantageous application of the propelling power.

From what has been here stated, it would seem that, in theory, the situation of the wind most favourable to propelling a ship, is when it acts perpendicularly to the sails, and they in turn to the keel; that is, when dead aft. In gales of wind, this is likewise true in practice; but in moderate weather, a ship will sail faster with the wind on the quarter, or even abeam; for then the sails do not mask each other, but all receive the wind without interruption. On this account they more than make up the disadvantages of the unfavourable angle; of having the sails transported to leeward, by reason of which that side tends to advance faster than the other, to the disordering of the steerage; of the ship's heeling, and receiving the wind obliquely in the vertical direction; and, finally, of making her sail partially on one side, instead of on an even keel, as she is designed to do. On this account our sharp schooners will sail nearly or quite as fast on a wind as off it, the sea being smooth and wind light; for whilst all their sails act advantageously, by approaching the wind, they add to its force, instead of diminishing it, as when running from it. In square-rigged ships, bracing the yards correctly is one of the nicest points of seamanship; in general, the nearer the yards approach to being perpendicular to the keel, consistently with keeping the sails full, the greater will be the velocity.

But to return to our ship; It may chance that the wind does not stop at the exact point which would enable her, close-hauled, barely to go her course, but even heads her off so far that she can no longer approach it nearer than a right angle. It is evident, now, that she is gaining nothing; but since she can sail within sixty degrees of the wind, by closing with it on the other side, she may approach within thirty degrees of the desired course. Hence it becomes essential to change sides. There are two ways of performing this evolution: the first consists in turning round towards the wind, and is called *tacking*; the second in turning before it, and is called *veering*. As the first requires the ship to turn a much smaller segment of a circle, and moreover maintains her head towards the desired course, so that all her progress during the evolution is gain, and finally, since it is performed with greater ease and expedition, it is always preferred when practicable. To tack, the crew are all stationed at the tacks, sheets, braces, and bowlines, ready to change the position of the sails. The ship being already close to the wind, the helm is gradually eased down, so that the rudder may not exert its full force until she begins to turn, nor act suddenly to check the headway, so essential to the success of the evolution; at the same time, the head sheets are flown, so as to cause the sails before the centre of rotation to shake, and lose their power of balancing the after ones. As the ship approaches the wind, the spanker is drawn gradually from the lee side towards the centre, that it may keep full, and, by its action so near the stern, continue promoting the rotation. As soon as the sails reach the direction of the wind, and cease to draw, the corners of the courses are drawn up, and the tacks and sheets overhauled, ready to swing the yards. After a while, the sails catch aback, and the fore sails, soon masking the after ones, act with a powerful lever to turn the bow. At length, having come head to wind, without loss of headway, and the evolution being certain, the after yards are swung round, ready to receive the wind on the opposite side; which operation is then more easily performed, from the sails being becalmed by the fore ones. Lastly, when the after sails are filled by the wind, the head yards are also braced round to receive its impulse, and the ship at once recovers headway. Should she gather sternway before the sails become full on the new tack, the helm is shifted, that its action in a backward direction, instead of checking, may aid the rotation. There may, however, be occasions in which it is impossible to tack, either because the wind is not of sufficient force, or else so strong as to render it dangerous; then veering is resorted to. To veer, we put the helm hard up, brail the spanker, and shiver the after sails: in this situation the pressure of the head sails, not being balanced by the after ones, tends, in conjunction with the rudder, forcibly to turn the ship. As she falls off, the after sails are still kept shivering until braced sharp on the opposite tack; when before the wind, the spanker is set to aid the after yards and helm in bringing her to; the fore sails are then squared, and gradually braced forward until the ship be by the wind again.

Thus easily is a ship manœuvred in fine weather. Not unfrequently, however, a gale comes to disturb the peaceful course of the mariner, and call forth all his exertions. Let us suppose that, whilst ou. ship is contending against the head wind, the misfortune is augmented by its gradual increase. Shortening sail becomes necessary, and is determined by two leading considerations—the stability of the ship, and the strength of her masts: it is to diminish the careening of the one, and avoid endangering the other, that the surface spread to the wind is reduced. In shortening sail, we always begin with the highest and lightest sails, descending gradually, and keeping pace, in an inverse ratio, with the increase of wind. The sails do not, however, come in uniformly in the direction of the length; but the after sails most rapidly; because, as the wind increases, the energy which it exerts in a forward direction upon the masts, tends, with a powerful lever, to depress the bow and raise the stern; hence the latter drifts more easily to leeward, thereby bringing the bow towards the wind; this effort is also promoted by the action of the sails passing farther to leeward, and by the ship ceasing to sail on an even keel. From all these reasons, the more the wind increases, the more she tends to come to; so, to avoid a constant recurrence to the action of the rudder, it becomes necessary to shorten sail faster aft than forward; taking in the mizzen-top-gallant-sail, and even the spanker, before the fore and main-top-gallant-sails: for the same reason, when it becomes necessary to reef, it is not unusual to begin with the mizzen-top-sail. Reefing consists in binding a portion of the sails to their respective yards, so as to reduce the surface. To reef the top-sails, we clew the yards down, haul up the sides of the sails by means of reef-tackles, and brace the yards to the wind, until the sails shiver and spill; then the men go out on the yard, and, by means of the earings and reef-points, securely bind the requisite portion. When the top-sails are double-reefed, it is time for the jib to come in to relieve the jib-boom and fore-top-mast of the pressure: to counterbalance the loss of this head sail, the mizzen-top-sail may be furled. When the top-sails are close-reefed, the main-sail is either reefed or furled. As the gale increases, furl the fore-top-sail; taking care to draw up the weather clew first, that the sail may not be in danger of shaking and blowing away. Our ship is now under reefed fore-sail, main-top-sail close-reefed, fore-top-mast-stay-sail, and storm stay-sails; these are stout triangular sails, running in the direction of the fore, main, and mizzen-stays; they are often advantageously replaced by gaff-sails, which are similar to the spanker. Should it blow still harder, it may be necessary to take in the fore sail, replace the fore-top-mast by the storm stay-sail, and even furl the main-top-sail. The ship now drifts much, and, tending to fall off, from her greater draught abaft, and consequent resistance of the water, will require the reefed spanker, and even the continued assistance of the rudder, to keep her to: the helm being kept constantly hard down, she is said to *lie to*. This is the way in which most ships make the best weather; some, however, tend so much to fall off into the trough of the sea, as to be in perpetual risk of being boarded by the waves (which wash the boats and other movables loose, sweep the crew overboard, to creep up the sides again by the channels, or find a watery grave), and, if the hatches be not well secured, of having her existence fatally endangered. In this case, it may become necessary to bear up and scud. To do this with least risk, it is necessary to show the head of the fore-top-mast-stay-sail, or part of the fore-sail or fore-top-sail; taking advantage of a momentary lull and smoothness of the sea to bear away. The after sails are taken in on putting up the helm, and it may even be necessary to cut away the mizzen-mast. When before the wind, sufficient sail must be spread to keep the ship before the waves, that they may not overtake and strike her with too much force; the main-top-sail, from its height, is never becalmed by the sea, and is therefore a good sail to scud under. At such a season, special care must be taken to provide for the security of guns, boats, and other moveables, liable to tear themselves loose; also that the pump-well be sounded at short intervals, to have timely notice of a leak. Too often the ship yields to the fury of the elements, disappearing for ever, with all her treasures of property and of life; oftener, however, the elements become weary with their own violence, and man remains triumphant; the gale abates; the mariners, all alacrity, send up the masts and yards which they had housed and taken down on the approach of the tempest; the reefs are all shaken out, and sail is added, to keep the ship from labouring in the still raging waves. Hope mounts with the ascending canvass: and now the wind, become less wayward, again permits us to turn the prow towards the haven whither we would arrive: the wings, whose spreading and furling are ever the signal to the mariner of joy or of sorrow, are once more wide extended; every spot is white with the bellying canvass, the sea foams beneath the bow, and we bound merrily towards the land.

And are we not justified in expressing our admiration at this great achievement of man—the production of this wonderful machine—the most complicated, most perfect, sublimest of all the works of art? If it be well said that man is the noblest work of God, it may with equal truth be asserted that the ship is the noblest work of man. Our language has indeed done well in awarding to her the honours of personification.* It were a vain task to attempt enumerating the various geometrical problems involved in her design, or the multiplied mechanical principles combined in her construction. Let us only, forgetting all we know, endeavour for a moment to realize the immeasurable distance and difficulties between the trees growing in the forest, the iron and copper buried deep in the bowels of the earth, the hemp waving in the fields, the tar sealed up in its timber, and the actual achievement of the sailing ship? Yet a very short time—a single month—suffices to transform these rude productions into the magnificent machine, which, notwithstanding its mountain form, obeys each command of the mariner; goes from the wind, towards it, halts, or redoubles its velocity, obedient to his voice; in which he launches boldly forth amid the horrors of a troubled ocean; braves them successfully, conducted by the inspirations of a sublime philosophy; attains the most distant shores; accomplishes his purpose, and returns, enriched, enlightened and triumphant, to his home. For the sequel of this subject, see *Navigation*, and *Navy*.

In plate LXXXII, will be found representations of various kinds of vessels—a man of war, a frigate, a merchantman, a brig, a schooner, a lugger, a sloop, a xebec, a wherry and a galley. Some of these are described under their proper heads. A *man of war* belongs to the largest class of war vessels; a *frigate* to the secondary class. A *merchantman* represents the highest class of merchant vessels. A *ship*, in the strict application of the term, has three masts; a *brig* has only two, but it is square-rigged like a ship. A *schooner* has two masts; but though it has top-sails and top-sail yards, it is not, in general, square-rigged like a brig. A *lugger* is a small kind of vessel, but which carries three masts and a running bow-sprit. Its sails are of a description called lug-sails. A *sloop* has but one mast, and is generally employed on the coasting trade. There are, however, sloops of war, which carry ten or twelve guns. A *brigantine* is a brig which can either be sailed or rowed. A *xebec* is a light swift-sailing vessel, of three masts and a long prow, peculiar to the ports of the Mediterranean. A *galley* is another vessel peculiar to the ports of the Mediterranean. It is low-built and carries two masts, but depends chiefly upon being rowed with oars. Galleys were formerly much used by the Barbary pirates. A *yacht* is a small vessel with one deck, designed either for state or pleasure. A *wherry* is a small kind of yacht, used chiefly by fishermen.

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* It is a peculiarity of the English language to apply the feminine pronouns to a vessel; in fact the illiterate in England have a peculiar inclination to give the feminine gender to inanimate objects. Carpenters, moving a large piece of timber, will say, Here *she* comes; a sailor calls his watch *she*. The navy, in England, being a subject of universal interest and pride, peculiarities in the language of seamen would be more likely to come into general use, than the cant phrases of other classes. The mower calls his scythe *she;* but this was never admitted into good language. Mr Cobbett, in his Grammar of the English Language, Letter V, says—"It is curious to observe that country labourers give the feminine appellations to those things only which are more closely identified with themselves, and by the qualities and condition of which their own efforts and their character as workmen are effected. The mower calls his scythe *she;* the ploughman calls his plough *she;* but a prong, or a shovel, or a harrow, which passes promiscuously from hand to hand, and which is appropriated to no particular labourer, is called *he*," &c. The Scotch Highlanders even use the feminine pronoun for male persons, as our readers know from Scott's novels.

SHIP OF FOOLS. See *Brandt*.

SHIRAZ. *Schiraz.*

SHIRE; a Saxon word, signifying *division;* the old Saxon name for the larger districts into which England was divided, and which has been, in a great measure, superseded by the Latin term *county*. (See *County*.) Hence the name *sheriff* given to the chief officer of the shire, and *shire-gemote* (Saxon, *gemote*, meeting), to the sheriff's tourn or county court. (See *Courts*.) The English county members of the house of commons are called *knights of the shire*.

SHIRLEY, JAMES, a poet and dramatic writer, was born in London about 1594, educated at Merchant Tailors' school, and thence removed to St John's college, Oxford. He became a favourite with Doctor Laud, who discountenanced his entry into the church, on account of a large mole upon his cheek, which he deemed a disqualification by deformity, according to the canons. On removing to Cambridge, he met with no difficulty on this score, and obtained a curacy near St Alban's. He soon after went over to the church of Rome, and, giving up his curacy, sought to establish a grammar-school in the same town. Failing in this endeavour, he removed to London, became a writer for the stage, and acquired a reputation which caused him to be taken into the service of queen Henrietta Maria. His first comedy is dated 1629, and he wrote nine or ten between that year and 1637, when he accompanied the earl of Kildare to Ireland. He returned the following year, and when the civil war broke out, he left London, with his wife and family; and, being invited by the earl of Newcastle, he accompanied that nobleman to the wars. On the decline of the king's cause, he returned to London, and, the acting of plays being prohibited, resumed his school. In 1666, he was forced, with his wife, by the great fire, from his house in St Giles's parish; and, being extremely affected by the loss and terror that the fire occasioned, they both died, October 29, within twenty-four hours. Besides thirty-seven tragedies and comedies, he published a volume of poems, some specimens of which may be found in Ellis's Collection.

SHISHAC OR SESAC; an Egyptian king, mentioned by the Hebrew writers, who made an incursion into Judea in the reign of Jeroboam, and pillaged the temple (about B. C. 791). He has been commonly supposed to be the same as Sesostris (q. v.); but Champollion has proved (*Précis du Système hiéroglyphique*, pp. 255—257) that he is the Sesonchis of the Greeks, or Sheshonk; and an inscription at Karnac represents him as carrying into captivity the king of the Jews.

SHIUMLA. See *Choumla.*

SHOCK. See *Choc.*

SHORE, JANE; the wife of a rich goldsmith of London, in the fifteenth century, and mistress of Edward IV., whose favour, which she entirely possessed, she never abused to any man's hurt, but often employed to many a man's relief. After the death of Edward, in 1482, she seems to have been the paramour of lord Hastings. (See *Edward IV.*) Richard III. partly to revive among the citizens the memory of his brother's licentiousness, and partly on account of her connexion with Hastings, whom he accused of being "the chief abettor of that witch Shore," determined to expose her to public ignominy. Laying bare his arm, all shrivelled and decayed from his birth, he declared before the council, that the incantations and witchcraft of Jane Shore and her associates had reduced him to that condition. He then had her summoned to answer against a charge of sorcery; but, unable to effect his purpose in this manner, he directed her to be tried for adultery and lewdness by the spiritual court, and she was obliged to do penance in a white sheet, at St Paul's, before the whole people. She is supposed to have died at an advanced age in the reign of Henry VIII. Her story has been consecrated by the muse of Shakspeare (Richard III.) and Rowe, and has been introduced upon the French stage, in the tragedies of Liadières (Jane Shore, 1824) and Lemercier (*Richard III. et Jane Shore*).

SHORT-HAND. See *Stenography.*

SHORT-SIGHTEDNESS. See *Optics.*

SHOT; a missive weapon, discharged by the force of ignited powder from a fire-arm in battle. Of these there are various kinds. Round-shot or bullets are balls or globes of iron, whose weight is in proportion to the bore of the cannon. Double-headed, or bar-shot, are formed of a bar, with a round head at each end, which fits the muzzle of the cannon. The middle is sometimes filled with a composition, and the whole covered with linen dipped in brimstone, so that the cannon, in firing, inflames the combustibles or composition of this ball, which sets fire to the sails of the enemy. One of the heads of this ball has a hole to receive a fuse, which, communicating with the charge of the cannon, sets fire to the bullet. Chain-shot consists of two balls chained together, being principally designed to annoy the enemy by cutting sails, rigging, &c. Grape-shot is a combination of balls strongly corded in canvass upon an iron bottom, so as to form a sort of cylinder, whose diameter is equal to that of the ball which is adapted to the cannon. Case-shot, or canister-shot, are composed of a great number of small bullets, put into a cylindrical tin box. They are principally used, when very near, to clear the decks of the enemy. Besides these, there are others of a more pernicious kind, used by privateers, pirates, &c.; such are langrage-shot, star-shot, fire-arrows, &c. Star-shot consists of four pieces of iron, whose bases, when separate, form the quadrant of a circle; so that the whole, being joined, forms a cylinder equal to the shot of the cannon. Each of these pieces is furnished with an iron bar, the extremity of which is attached to a sort of link, as keys are strung upon a ring. Being discharged from the gun, the four branches or arms extend every way from the link in the centre. These are chiefly intended to destroy the sails or rigging; but their flight and execution are very precarious at any considerable distance.

SHREW-MOLE (*scalops*, Cuv.); head elongated and terminating in an extended and cartilaginous snout, which is very flexible; eyes exceedingly small, and entirely concealed by the hair, requiring the closest attention for their detection. The auricle is entirely wanting, and the integument of the head nearly covers the tube leading to the internal ear. The feet are very short, and five-toed; the fore feet terminate in a remarkably large hand, of which the fingers are armed with long, flat and linear nails. The hind feet are very delicate, and the toes are provided with small hooked nails. When at rest, the shrew-mole resembles a small stuffed sack. This animal is found abundantly in North America, from Canada to Virginia. He burrows with great quickness. His soft and polished fur, preventing friction, tends to facilitate his subterranean march. Numerous galleries, communicating with each other, enable the animal to travel in various directions without coming to the surface. Under ordinary circumstances, the burrows are simply oval-arched galleries, running forward, either straight or in gentle curvatures; sometimes only one to three inches deep, at other times much deeper. His favourite food is the earth-worm; and he destroys grubs, and insects of various kinds, in great quantities. In the winter, he burrows near streams, where the ground is not so deeply frozen. The shrew-mole is not only able to make his way rapidly under ground, but can run quite fast when on the surface. If you attempt to draw him, by his posterior extremities, out of his hole, he clings by his fore paws with great force, and, when finally dragged out, frequently inflicts a severe bite on his disturber. Shrew-moles are most active early in the morning and at mid-day. The precision with which these creatures daily come to the surface at twelve o'clock, is remarkable. The shrew-mole is covered with a bright glossy fur, about half an inch in length, and of a bright plumbeous colour, very closely set, and in all parts directed backward. The whole fore arm is concealed by the skin, leaving the broadly expanded palm, with its fore nails, projecting from the fore part of the body in an awkward manner, if compared with the interior extremity of other animals. The snout is composed of a cartilage, articulated with the premaxillary bones, and is moved in various directions by muscles situated on the side of the head; it is naked, and of a very light flesh-colour. The mouth is large, and the size of the tongue considerable. The eyes are difficult to be discovered externally, without a good glass. The eyeballs are less in size than a grain of mustard seed. The aperture of the eye-lids will about allow the passage of an ordinary sized human hair. The vision of this animal seems to be barely sufficient to give him an intimation of light, without allowing him to distinguish the figures of bodies. His whole structure seems to be studied with a view to facilitate his progress under the earth. The total length, from the point of the snout to the beginning of the tail, is five inches, and the tail is one inch long; the longest fur on the body, half an inch in length. A living specimen, kept for many weeks in a room, spent the greater part of the day in sleep, and was very active at night. He could not see in any light, as he uniformly ran his nose with some violence against every obstacle several times, before he learned to avoid those that were permanent.

SHREWSBURY; a market town and borough of England, in Shropshire, and the chief town in the county, is situated on the Severn, 153 miles N. W. from London, and forty west from Litchfield. There is a very fine public walk, called the Quarry, along the banks of the Severn. The streets are, some of them, steep and narrow, and indifferently paved. The public buildings deserve attention, both for their architecture and antiquity. The ruins of the castle consist of two round towers and a curtain, the work of Edward I.; the walls of the inner court; and the great arch of the interior gateway. There are six churches, a Roman Catholic chapel, and meeting-houses for Presbyterians, Unitarians, Baptists, Methodists and Quakers. The charitable institutions of Shrewsbury are the infirmary, the house of industry, an hospital, &c. In the suburb called the abbey Foregate are the remains of the abbey dedicated to St Peter, at one time a great resort of people from all parts of the kingdom, to the shrine of St Winefrid. Besides the abbey, Shrewsbury had formerly three convents and five chapels. Shrewsbury is a place of considerable trade. Flannels used to be the staple articles, and a coarse kind of woollen cloth, made in Montgomeryshire, called *Welsh webs*. Some manufactures are also carried on in the town, viz. of linen yarn, porter, &c. It is famous for its excellent bran, which is sent to various parts of the kingdom. It sends two members to parliament. Its origin is referred to the fifth century, when the Britons are thought to have established themselves here. It was often visited by the English monarchs, and became the scene of many military events. About two miles from the town was fought the battle of Shrewsbury, in which Henry V., then prince of Wales, first distinguished himself in the field, and Hotspur was slain. At the entrance of the town is a column of freestone, to commemorate the military achievements of lord Hill. Population in 1841, 18,285.

SHRIMP (*crangon*); a small, crustaceous animal, allied to the lobster and craw-fish, which frequents shallow waters along the sea-coast. In shape, it resembles these animals, but it is more elongated in proportion, and is destitute of the large anterior claws; and it is distinguished from the prawn by the absence of the long, anterior, serrated spine. The term is sometimes, but improperly, applied to the species of *gammarus*, which are much more abundant along the American coasts; but these are readily distinguished by the compressed form of their bodies. The shrimp has ten feet; the tail is as long as the body, and terminated at the extremity with scale-like appendages, which unfold somewhat in the manner of a fan. During life, the body is semi-transparent, and so much resembles sea-water that the animal is distinguished with difficulty. Its ordinary motion consists of leaps. It is abundant in sandy places, and furnishes nutriment to great numbers of fishes, aquatic birds, &c. In England, it is in great request for the table, and, in the summer season, is carried in vast quantities to the principal towns, even at a considerable distance in the interior.

SHROPSHIRE, or COUNTY OF SALOP, an inland county of England, extending in length about forty miles from North to South, and thirty-five in breadth from east to west. The general outline of this county approaches to a quadrangle, with several considerable indentations and projections. Its aspect is much diversified; the western parts, especially towards the south, being mountainous and rugged, while the eastern side is more level, though not destitute of hills and some elevation. What is called the Plain of Salop extends about thirty miles from Whitchurch and Oswestry on the north, to Colebrook Dale and Church Stretton on the south: it is unequally divided by the Severn; and from this plain, near Wroxeter, rises the hill of Wrekin, the height of which is about 1200 feet. On the south-eastern border of the plain is the more elevated district of Colebrook Dale, but the loftiest eminences in the county are the hills called Stiperstones, near the western border; and towards the south are the Clee Hills. The views from these heights are varied and extensive. All the rivers of this county communicate with the Severn, which enters Shropshire just after its confluence with the Wirnew, which joins it from the north-west; after which, passing in a south-east direction, winding through deep romantic valleys, finely wooded, it receives, on the eastern side, the united streams of the Tern and the Rodon, the former of which rises in Staffordshire; and on the western side several small rivers. This part of the county also is watered by the Camlet, the Clun, or Colun, the Oney, and the Corve, which, uniting with the Teme, join the Severn below Worcester. This county contains several lakes, or meres, the largest of which is that of Ellesmere. The soil presents many varieties of quality; but it is in general well cultivated. In the more level districts, great numbers of cattle are pastured; and much cheese is made, of a similar kind with that of Cheshire. The sheep, which are fed on the hilly tracts, afford some of the finest wool produced in England. North-eastward of the Severn, turnips are largely cultivated; there is a good deal of arable land, yielding large crops of wheat and other grain; potatoes are raised very extensively; and on the south, bordering on Herefordshire, are hop-yards and orchards. This county has been denuded of much of the timber which formerly clothed it, considerable quantities having been used for ship-building in the western ports, but there are yet remaining some fine woods and coppices. Extensive moors and mosses exist in some parts of the county, especially near Kinnersley; and there is a tract called Clun Forest, consisting of more than 12,000 acres of land, forming an extensive sheep-walk. The mineral productions of this county consist of iron and lead-ores, limestone, freestone, pipe-clay, and coal, besides petroleum and salt-springs. The district of Colebrook Dale, eastward of the Severn, is noted for its iron-works, which are among the most important in our island. The other manufactures of Shropshire are those of China-ware, earthen-ware, pipes, bricks and tiles, glass, and flannel. Population in 1841, 239,048.

SHROUDS; a range of large ropes extended from the mast-heads to both sides of a ship, to support the masts, and enable them to carry sail, &c.

SHROVETIDE, OR SHROVE TUESDAY; the day before the first of Lent or Ash-Wednesday, so called because on that day it was customary for all persons to confess their sins. (See *Carnival*, and *Lent*.) After confession, at least in England, it was usual to eat pancakes. Shrove Tuesday is called in German *Fastnacht* (fast eve), and in French *Mardi Gras* (fat Tuesday).

SHUMLA. See *Choumla.*

SIAM; a country in the peninsula of Farther India, or Chin-India, which is but imperfectly known to us. The Siamese empire is composed of Siam Proper, a large portion of Lao, a portion of Cambodia, and some tributary Malay states, extending from about lat. 5° to 21° N., and from lon. 97° 50′ to 105° E. Its area may be estimated at 190,000 geographical squares miles, with a population of not more than 2,790,500, of which 1,260,000 are Siamese, 840,000 Laos, 195,000 Malays, 440,000 Chinese, &c. The greater proportion of the territory, although it contains some rich alluvial plains, appears to be mountainous: the soil is, much of it, fertile, the climate favourable, and the communication easy, so that the thinness of the population must be ascribed to the barbarism and bad government of the country. The capital of the empire is Bangkok (lat. 13° 50′ N.), near the mouth of the Menam, the great river of Siam, the population of which Crawfurd estimates not to exceed 50,000. Ayuthia, the old capital, eighty miles from the mouth of the same river, which here becomes navigable, is the next considerable city of the empire. Siam Proper is the valley of the Menam, which, at its southern extremity, does not exceed sixty miles in breadth: its length is stated at about 360 miles, and its superficial area may amount to 20,000 square miles. The country of the Laos—a people speaking a dialect of the Siamese language—appears to be divided between the Siamese, the Chinese, and the Birmans, with which latter empires that of Siam is thus brought into contact. Subsequently to the civil war which broke out in Cambodia in 1809, that kingdom was divided between the Siamese and the Cochin-Chinese governments. The Malay states tributary to Siam are Queda, on the western coast of the peninsula, with Patani, Kalantan and Tringano on the east. The Siamese are one of the most considerable and civilized of the group of nations inhabiting the tropical regions beyond Hindoostan and China. In stature they are shorter than Europeans, averaging about five feet three inches in height. Their complexion is a light brown, rather darker than that of the Chinese. In the useful arts they have made little progress, and, in this respect, are much behind the Hindoos and Chinese. Their alphabet consists of thirty-eight consonants, and numerous vowels and diphthongs, and the characters are written from left to right. The language is destitute of inflections, and its construction depends, therefore, like the English, on juxtaposition. The literature is very meagre, consisting merely of some songs, romances and chronicles. Their sacred literature, like that of all other Buddhist countries, is in the Bali or Pali language. The Siamese are represented by travellers as servile, rapacious, slothful, disingenuous, pusillanimous and vain. The religion is Buddhism, resembling, in its morality and doctrines, that which prevails in Ceylon, but differing considerably from the Buddhism of Tartary, China and Japan. (See *Buddha*, and *Fo*.) The priests, or *talapoins*, live in monasteries, and are bound to celibacy. The earliest event of which we have any information in Siamese history, is the introduction of the religion of Buddha from Ceylon in the seventh century of the Christian era. In 1511 began the first intercourse of Europeans with this country, through the Portuguese. In 1684, the celebrated Siamese embassy was sent to Louis XIV., through the influence of Constantine Phaulcon or Falcon, a Greek adventurer, who by a singular destiny, had become *phraklang* or foreign minister of Siam. In the middle of the last century, the country was conquered by the Birman prince Alompra (see *Birman Empire*); but it has since recovered its independence, and, during the reign of the late king (1809—1824), considerable acquisitions of territory were made.—See Crawfurd's *Journal of an Embassy to Siam and Cochin-China* (London, 1828).

SIAMESE TWINS, two youths born in the kingdom of Siam, with bodies singularly united by a strong band at the lowest part of the sternum of each, were carried from Siam, April 1, 1829, by captain Coffin, of the American ship Sachem, and extensively exhibited in Europe and the United States during that and the three subsequent years. "The substance by which they are connected," says doctor Warren, "is a mass two inches long at its upper edge, and about five at the lower. Its breadth, from above downwards, may be four inches, and its thickness, in a horizontal direction, two inches. Of course it is not a rounded cord, but thicker in the perpendicular than in the horizontal direction. At its lower edge is perceived a single umbilicus, through which passed a single umbilical cord to nourish both children in the fetal state. Placing my hand on this substance, which I will denominate the cord, I was surprised to find it extremely hard. On further examination, this hardness was found to exist at the upper part of the cord only, and to be prolonged into the breast of each boy. Tracing it upwards, I found it to be constituted by a prolongation of the ensiform cartilage of the sternum, or extremity of the breast bone. The breadth of this cartilage is an inch and a half; its thickness may be about the eighth of an inch. The cartilages proceeding from each sternum meet at an angle, and then seem to be connected by a ligament, so as to form a joint. This joint has a motion upwards and downwards, and also a lateral motion, the latter opening in such way that when the boys turn in either direction, the edges of the cartilage are found to open and shut. The lower face of this cartilage is concave, and under it is felt a rounded cord, which may be the remains of the umbilical cord. Besides this there is nothing remarkable felt in the connecting substance. I could distinguish no pulsating vessel. The whole of this cord is covered by the skin. It is remarkably strong, and has no great sensibility; for they allow themselves to be pulled by a rope fastened to it without exhibiting uneasiness." To this we add, from the report of G. B. Bolton, esquire, read before the London royal society, April 1, 1830: "Under the cartilage, while they stand in their ordinary posture, are large hernial sacs opening into each abdomen, and into which, on coughing, congenital herniæ are forced, probably in each boy, formed by a portion of the transverse arch of the colon. Generally, however, and under ordinary circumstances, these herniæ are not apparent. Whether there is a communication between the two abdominal cavities, or a distinct peritoneal sac belonging to each hernia, is by no means obvious. When these herniæ protrude, their respective contents are pushed forwards as far as the middle of the band." If the connecting link be touched in the centre, the touch is equally felt by both; but, at half an inch from the centre, it is felt by but one. These two young persons, Eng and Chang by name, are natives of a small village, called Maklong, on the sea-coast of Siam. They were born in May, 1811, of Chinese parents. Their mother observed that she suffered no greater inconvenience at their birth than at that of her former children, as they were very small, and the head of one was presented between the legs of the other. Their parents were of the poorer class, and, until the youths left their home, they were engaged in fishing, manufacturing cocoa-nut oil, keeping poultry, &c., for the support of the family. They are about five feet two inches in height, are well made and muscular. They have been known to carry a person weighing 280 pounds a hundred feet. They are agile, can walk or run with swiftness, and can swim well. Their intellectual powers are acute: they play at chess and draughts remarkably well. Their feelings are warm and affectionate, and their conduct amiable and well regulated. They never enter into conversation with each other beyond a simple remark made by one to the other, which seems to be rationally accounted for by the fact that, their experience being all in common, they have nothing to communicate. The attempt has frequently been made to engage them in separate conversations with different individuals, but always without success, as they are invariably inclined to direct their attention to the same thing at the same time. In their movements perfect equanimity is observed, the one always concurring with the other, so that they appear as if actuated by a common mind. In their employments and amusements, they have never been known to utter an angry word towards each other. Whatever pleases or displeases one has the same effect on the other. They feel hunger and thirst at the same time, and the quantity of food taken by them is as nearly alike as possible. Both feel the desire to sleep simultaneously, and they always awake at the same moment. Upon the possibility of separating them with safety there is some difference of opinion among medical men. The majority believe it impossible.

SIBERIA; a vast country of the north of Asia, with the Altai and Caucasus mountains on the south, and the Ural mountains on the west, the Pacific on the east, and the frozen ocean on the north. It is one of the most desolate regions on the globe. A great portion of it is included within the limits of the frozen zone; and even the southern parts, from their physical structure, are exposed to a high degree of cold. Its situation also nearly excludes it from communication with the civilized parts of the world. The rivers generally have a northern direction, flowing into the Frozen ocean, the shores of which are barred by almost perpetual ice. Of the rivers, the Oby, Enisei and Lena are amongst the largest on the globe; others are the Irtisch, Angara, Selinga, &c. The Ural mountains on the west, and the Altaian range in the south, form striking features of Siberia. Another characteristic feature consists in the immense steppes, or elevated plains, covered with long rank grass and aquatic shrubs, and filled with saline lakes. The natural productions of Siberia are gold, silver, copper, lead, iron, zinc, arsenic, sulphur, plumbago, &c. In the northern districts, the prevailing animal is the rein-deer. The chief fur animals are the sable, black fox, ermine, martin, &c. The ferocious animals are the bear, wolf, lynx, and wild hog. In various parts of Siberia there are found remains of extinct species of animals. (See *Organic Remains.*) The mass of the population of Siberia consists of the native tribes, who are in a degree subjected to the Russian empire. Some of the most numerous tribes are the Burats, Yakoutes, Tunguses, Samoeides and Monguls. The prevailing religion is the system of Buddha, or of the Lamas. The commerce consists chiefly of two branches, one formed by the exportation of metals and furs, the other a mere transit trade, consisting in an overland intercourse carried on across Siberia with the Chinese empire. The theatre of this commerce is Kiachta. In 1825, Siberia was divided into the four governments of Tobolsk (with the province of Omsk), Tomsk, Yeniscisk and Irkutsk, with the province of Jakutsk, and the two maritime provinces of Okotsk and Kamtschatka. The population of the country is about 2,000,000, on a superficial extent of 4,280,000 square miles. Siberia was attached to the Russian dominions towards the end of the sixteenth century, and the sovereigns of Russia assumed the title of *czar of Siberia*, which they still retain. The importance of this region did not escape Peter the Great, who introduced manufactures, and settled Russian colonies in it. State criminals are also banished to Siberia. See Martoinoff's *Voyage Pittoresque de Moscou aux Frontières de la Chine* (1819), and Cochrane's *Pedestrian Journey through Russia* (1827).

SIBYL, AND SIBYLLINE BOOKS. Sibyl (derived by some authorities from σιος, Æolic for ϑιος, God, and βολη, for βουλη, counsel) signified, originally, a female inspired or counselled by God. Of these prophetic virgins, who were believed to be thrown by a god into a kind of transport or insanity, in which they were able to unveil futurity, ancient writers mention ten, among whom the Sibyl of Cumæ, in Campania, was the most celebrated. According to O. Müller, the oracle of the Sibyls, and the worship of Apollo, were carried to Cumæ from the Trojan Ida. The Sibyl of Cumæ is said to have written in Greek verses, the collection of prophecies famous under the name of *Sibylline books*, which, according to some, she herself, according to others, an unknown old woman, offered to Tarquin for sale. When the king, on account of the high price asked, refused to buy them, the old woman threw three of the books into the fire, and, on a second refusal, three more, after which the king, alarmed, paid for the three remaining the price originally asked for the whole, and committed them, as an oracle, to be consulted on important political occasions, to the keeping of two men. The number, at a later period, was increased to ten, and by Sylla to fifteen. About that time, the temple of Jupiter, where the Sibylline books were preserved, was burned down, with the capitol. After the rebuilding of the capitol, the senate, in 677, sent delegates to all the Italian and Greek cities, especially to Erythræ, in order to collect whatever Sibylline verses they could find; and, after the rejection of those which were considered spurious, about one thousand of them were retained, and preserved in the new temple of Jupiter Capitolinus. The senate, at different times, ordered all the Sibylline books which could be found in private hands to be burned. Augustus did the same, and destroyed above two thousand such books, but caused the genuine Sibylline books to be preserved in two chests of gold under the pedestal of the Apollo Palatinus. Yet the belief in every thing which went by the name of a Sibylline prediction was so strong that, in 772, Tiberius caused an investigation of all such prophetic verses to be made, and received some of them as genuine; whereupon, in 785, one of the keepers of the sacred volumes proposed the admission of another book. In general, the Sibylline books remained longer in authority with the Romans than the oracles with the Greeks. Though they were burned a second time, in the reign of Nero, yet in the time of Aurelian (A. D. 270), some senators were in favour of consulting the Sibylline books, respecting the event of the Marcomannic war. Yet they were then so corrupted, that Christians could find in them predictions respecting the Messiah. This collection was burned under Julian (A. D. 363); and a fourth collection was burned under Honorius (395), by Stilicho; in spite of which a fifth collection was believed to be genuine. When Belisarius, in the middle of the sixth century, was besieged in Rome by the Goths, two Sibylline verses were considered as predicting that the siege would last but five months, which, however, did not agree with the event. It may be easily imagined that the Sibylline books can have retained their authority through so many centuries only by the greatest vagueness, admitting of any interpretation, and never committing themselves. The still-existing collection of Sibylline verses, most complete in the edition of Gallæus (Amsterdam, 1689), is of a later date, and is not considered genuine. These had their origin in the second century, when there were persons called *Sibyllists* in the Christian communities, who uttered poetic oracles, and whose outpourings were collected, and also called Sibylline books, on which Theoloririus wrote a Latin essay.—See Frederic Bleek's essay on their origin and composition, in Schleiermacher's *Theolog. Zeitschrift*, vol. i., no. 1; and Angelo Maio, in the preface to his edition of a Sibylline Book (Milan, 1817).

SICARD, ROCH AMBROISE CUCURRON, successor of the abbé l'Epée at the Parisian institution for the education of the deaf and dumb, was born September 20, 1742, at Fousseret, near Toulouse, and entered into holy orders. He devoted himself to the instruction of persons born deaf and dumb, and became, in 1786, director of a school established for that purpose by the archbishop of Bordeaux, whence, in 1789, he removed to Paris, and was chosen successor to the abbé l'Epée, in whose system he made some important improvements. In 1792, he was arrested in the midst of his pupils, by order of the commune of Paris; and, September 2, was transferred to the prison of the abbey of St Germain, where he narrowly escaped becoming a victim in the ensuing massacres. On the foundation of the normal school, in 1795, he was appointed professor of grammar; and, about the same time, he was made a member of the institute. He then became one of the conductors of the *Annales Catholiques*, on account of which he was included by the directory in the number of the journalists sentenced to be exiled to Sinamari. He concealed himself, and thus avoided deportation; but it was not till after the overthrow of the directory that he was able to return to his situation at the school of instruction for the deaf and dumb. The old age of Sicard was clouded with misfortunes arising from his improvidence; but, after the restoration, he was made a knight of the legion of honour, administrator of the hospital of the Quinze-Vingts, &c. His death took place May 10, 1822. Besides other works, he was the author of *Elémens de Grammaire générale appliquée à la Langue Française* (2 vols., 8vo.); *Cours d'Instruction d'un Sourd-muet de Naissance* (8vo.); and *Théorie des Signes pour l'Instruction des Sourds-muets* (2 vols., 8vo.)

SICILIAN VESPERS. Charles of Anjou had established himself, through the favour of the pope, in possession of Naples and Sicily. The unfortunate Conradin had perished on the scaffold, October 29, 1268. But the haughty Charles ruled with an iron sceptre, and the oppressed people applied in vain for relief to the pope. Giovanni di Procida, a nobleman of Salerno, distinguished for his talents and accomplishments, determined to deliver Sicily from her sufferings. He had stood high in favour with the emperor Frederic II., and king Manfred; and had been stripped of his estates by Charles, on account of his attachment to the Suabian house. Meditating revenge, he went to Arragon, and invited king Peter, whose wife Constantia was a daughter of Manfred, to undertake the conquest of the kingdom of Sicily. Peter was disposed to embrace his proposals; but he was destitute of money and men. Procida promised to make all necessary provision. He accordingly went to Sicily in disguise, and found the public feeling favourable to his wishes. He then hastened to Constantinople, represented to the emperor Palæologus the danger which threatened him from Charles, and prevailed upon him to promise pecuniary aid to Peter. Procida next had a private audience of the pope, and found him inclined to assist in effecting the humiliation of Charles. He returned to Arragon with this account of his success, and a large supply of money; and Peter immediately began to make extensive preparations for the expedition, under pretence of an attack upon the Moors in Africa. Charles, though suspecting the truth, neglected to prepare any measures of resistance. Meanwhile pope Nicholas III., upon whom Peter chiefly relied, died, and caution became doubly necessary. He therefore embarked, with his forces, and sailed for Africa, to keep up appearances of hostilities against the Moors, while he expected some demonstrations of a rising among the Sicilians. March 30, 1282, at the hour of vespers on Easter Monday, the inhabitants of Palermo flew to arms, and fell upon the French, who were all massacred. Women and children were not spared, and even Sicilian women with child by Frenchmen were murdered. This massacre is called the *Sicilian Vespers*. The other towns of Sicily, at first, remained quiet. Before the end of April, Messina followed the example of Palermo, and the French were either murdered or driven from the city. As soon as Charles, who was at Orvieto with the pope, received information of what had occurred, he hastened to Naples, and set his forces in motion. In July, he appeared before Messina, which was disposed to surrender. But when Charles required unconditional submission, the Messinese determined to resist to the last drop of blood, and conducted the defence with the most desperate valour. The women and children exposed themselves fearlessly to death; and by this universal co-operation of all classes, the efforts of superior numbers were baffled. Thus stood matters when Peter of Arragon landed at Trapani, August 30, with 10,000 foot-soldiers and 800 men at arms, and entered Palermo, where he was hailed as king by the people. Charles still besieged Messina; but fearing the interruption of his connexion with Calabria, he raised the siege, and fled in haste across the straits, leaving behind him a great quantity of military stores. On the passage, he was met by Peter's brave admiral Ruggieri di Loria, who took twenty-nine of his ships, and committed great devastation on the Neapolitan shores. October 2, Peter entered Messina, and was received with acclamations; whilst the pope excommunicated him and the Sicilians. In the following year, Constantia appeared in Sicily with her sons, and was received as the rightful possessor of the island. The succession was settled on her second son, James. See *Delavigne.*

SICILIES, THE KINGDOM OF THE TWO, consisting of Naples *(Dominj al di qua del Faro)* and Sicily (*Dominj al di la del Faro*). In the most ancient times of Rome (see *Italy*), Lower Italy was inhabited by the savage Ausonians, amongst whom were the mountaineers of Lucania and Bruttii (Abruzzo), including the Samnites. The country on the eastern coast was called Apulia (Puglia); and the small peninsula at the extremity of the country, Calabria. In Lower Italy, the Greeks settled chiefly on the coasts; hence its name, *Magna Græcia.* The dominion of Rome over Lower Italy commenced with the conquest of Tarentum, 272 B. C. (See *Fabricius*, and *Pyrrhus II.*) After the fall of the Western Roman empire (A. D. 476), Lower Italy became subject to the Ostrogoths. About the middle of the sixth century, Naples and Sicily fell under the power of the Greek emperors. Both countries were subject to one governor, the exarch of Ravenna, who conducted the administration by means of dukes. During the contest between the exarchs and Lombards, there sprung up, in the ninth century, several independent duchies, such as Salerno, Capua and Tarento. The most powerful was the Lombard duchy of Benevento. Naples, Amalfi and Gaeta maintained themselves as republics. About the same time, the Saracens invaded Calabria, from Sicily. They conquered Bari, and contended with the Greeks for the possession of Lower Italy, until the emperor Otho I. (967) subjected Benevento to the German empire. Germans, Greeks and Arabs now struggled for the possession of this beautiful country. This induced some warlike adventurers, Normans from France, in the eleventh century, to lend their aid to the princes in Lower Italy. They assisted the Greek duke Sergius against prince Pandorf, of Capua, and were rewarded with the tract of land on which they founded the town of Aversa. More Normans soon followed. In 1047, the twelve sons of Tancred de Hauteville, a count in Lower Normandy, came in with their followers. Among these brothers, Robert Guiscard was the boldest and most artful. He contrived to gain over the peasants, and formed out of them his best soldiers. His policy led him to hold Apulia, which he had conquered, as a papal fief (1053); and he promised, likewise, to hold, as papal fiefs, such tracts as should afterwards be subdued by the Normans, in Calabria and Sicily. He then (1060) took the title of duke of Apulia and Calabria. His youngest brother, count Roger, conquered Sicily in 1072. After the death of count Robert and his sons, he united in his own person the whole power of the house of Hauteville, and received, in 1098, by an extraordinary bull of pope Urban II., for himself and his successors, the supreme spiritual power in his dominions on the island. His son and successor, Roger II., completed, after 1101, the conquest of all Lower Italy by subduing Capua, Amalfi and Naples, at that time celebrated commercial republics. He then received, in 1130, from pope Anacletus II. by whom he was solemnly infeoffed, the title of king of Apulia, Calabria and Sicily. The same year, he united all the countries on both sides of the straits of Messina, under the name of *the kingdom of the Two Sicilies*. This union of Naples and Sicily continued 150 years. Palermo was his residence. Each country preserved its existing laws. In Naples, however, besides the ancient Lombard laws, the French feudal law was also introduced. To the pope, as lord paramount of Naples, a tribute was paid of a palfrey and a bag of ducats. When William, grandson of Roger II., died, in 1189, the race of Tancred became extinct. The German emperor, Henry VI., of the house of Hohenstaufen, now claimed the right of succession to the throne of Naples and Sicily, as belonging to his wife, Constantia, the daughter of Roger II. The Sicilians, however, detested the German dominion, and elected Tancred, natural son of Roger, to be their king, and, after his early death, made choice of his son, William III., a minor. Henry VI. then entered the kingdom a second time, with more success than during the lifetime of the brave Tancred, and, by horrid cruelties, maintained possession of it. His memory was held in abhorrence by the Sicilians; but they, nevertheless, allowed his son Frederic II., a child three years old, to succeed him, in 1197. During the reign of this distinguished emperor, Naples was made the capital. The neighbourhood of the powerful imperial house was disagreeable to the popes, and pope Urban IV. granted the kingdom of the Two Sicilies, on the death of Conrad IV. (1254), to Charles of Anjou, brother of Louis IX., of France, who caused the legitimate heir, Conradin of Suabia (1268), to be beheaded. Sicily, however, freed herself, in 1282, from the oppressions of the French (see *Sicilian Vespers*), by the aid of king Peter III., of Arragon, whom Conradin had made his heir, and whose wife was a daughter of Manfred, natural son of the emperor Frederic II. Sicily now remained separated from Naples for 160 years. She acknowledged Peter III., of Arragon, as her sovereign, who left this kingdom to his younger son James. The kings of Arragon withdrew the island from the feudal sway of the pope, and Sicily was united to the Spanish monarchy until the time of the Spanish war of succession. In Naples, the house of Anjou maintained itself, and Charles bound himself to pay an annual tribute to the pope of 8000 ounces of gold, and every three years to send a white horse to Rome. His great-grandson, Charles Robert, king of Naples, was made king of Hungary by the Hungarian diet, in 1307. After the death of king Robert, in 1343, under the reign of queen Joanna I., his granddaughter, great disturbances arose in Naples; for pope Urban VI. crowned Charles of Durazzo, of the house of Anjou-Naples in Hungary, as king of Naples. He caused queen Joanna to be suffocated in 1382, and united the kingdoms of Hungary and Naples; but in the year 1386, he was assassinated in Hungary. His son Ladislaus maintained a successful struggle for the throne of Naples with Louis of Anjou, the adopted son of Joanna. He took possession of Rome, and was on the point of uniting the whole of Italy into one kingdom, when he died, in 1414. Upon this, his sister, queen Joanna II., in the year 1420, adopted king Alfonso V., of Arragon and Sicily, who drove his rival, the French prince Louis III., of Anjou, out of Naples in 1458. Thus arose the jealousy between France and Spain, which, towards the end of the fifteenth century, wrapt the whole of Italy in flames. Alfonso V. was succeeded in Naples by his natural son Ferdinand I., whose grandson, Ferdinand II., was attacked by Charles VIII., of France, the champion of the claims of the house of Anjou, and whose second son, king Frederic III., was dethroned by his cousin, Ferdinand the Catholic, king of Spain and Sicily, in conjunction with Louis XII. of France. The conquerors disagreed respecting the partition of Naples, and the cunning Ferdinand the Catholic (see *Ferdinand V. of Arragon*, and *Gonsalvo*) managed to maintain himself in the sole possession of the whole, by artifice and force, in 1504. During this warfare of countries and crowns, which had been carried on for centuries almost without interruption, the constitution of the cities had been developed, and the kings of the house of Anjou began to summon delegates from them to the diet, which had been done previously in Sicily; but the feudal system continued, and the barons were constantly increasing their privileges. They even acquired the right of life and death over their vassals, in return for which the kings hoped to obtain their assistance in time of war. Thus the people were plunged into the greatest misery; and at no time have the Neapolitans been able to withstand foreign arms. The aristocracy, however, remained the same under every sovereign, and the depraved manners of the court, and the example of such licentious princesses as the two Joannas, corrupted the public morals. At that period there were feudal estates, which limited the power of the kings. But in the two centuries after the peace with France in 1505, during which the kingdom of the Two Sicilies remained a part of the Spanish monarchy, the diets were no longer convened in Naples, and the viceroys consulted merely with a committee of the estates, in which the city of Naples represented the whole third estate. Thus the regal power increased, and with it the burden of taxes. The rebellion which took place in April, 1647 (see *Massaniello*), owing to the arbitrary mode of raising the taxes, might, under more prudent management, have led to independence. Still more did the prosperity of the country decline under the oppression of the nobility and the power of the clergy. No law limited the extension of the property of the church, and both in Naples and in Sicily, two thirds of the landed property gradually came into their possession. On the extinction of the Austro-Spanish male line, in 1700, Naples and Sicily fell into the hands of Charles V., of Spain, who governed arbitrarily, without consulting the chambers. At the peace of Utrecht, through the influence of the English, who were jealous of their commerce, Naples and Sicily were divided: the former fell to Austria, the latter to Savoy. King Philip V. of Spain re-conquered Sicily in 1717, at the instigation of Alberoni, but was forced to cede it to Austria in 1720; and Savoy received Sardinia in return (see *Sardinian Monarchy*), by which means the Two Sicilies became a part of the Austrian dominions; however, in the war which was occasioned by the election of a king for Poland, in 1733, Spain conquered the Two Sicilies, and retained them at the peace of Vienna (1735), for the Infant Don Carlos. In 1759, when he ascended the Spanish throne, under the name of Charles III., he conferred the kingdom of the Two Sicilies on his third son, Ferdinand, and decreed, at the same time, that it should never again be united to the Spanish monarchy. Ferdinand reigned in the Two Sicilies under the name of Ferdinand IV., (see *Ferdinand I.*,—the title which he took after having united all his states under one kingdom of the Two Sicilies, 12th of December, 1816). July 7, 1820, he was forced to establish the new Spanish constitution, in consequence of an insurrection which originated principally amongst the army. He therefore conferred the regency on his son; but Austria, Russia, and Prussia, determined at Laybach, January, 1821, in concurrence with king Ferdinand. to occupy the country with an Austrian army, and restore the old system, in which they succeeded. (See *Acton*, *Bonaparte*, *Murat*, and *Naples and Sicily*, *Revolution of.*). King Ferdinand I. returned from Laybach to his capital, May 15, 1821, with the promise of giving a constitutional organization to the government. May 26, a decree was issued respecting the new constitution, providing that the government should be conducted by a council of ministers and secretaries of state, under the presidency of the king or the crown-prince (duke of Calabria), or one of the ministers; that Sicily should be governed separately from Naples, by a distinct council; that there should be two state councils (*consulte di stato*), one at and for Naples, consisting of thirty members, the other, consisting of eighteen members, at Palermo, for Sicily, to deliberate on the laws and financial measures laid before them by the council. The ultimate decision, however, was to rest entirely with the king, who was to appoint the president and members of these bodies out of the landholders and principal officers of the state, church, law and army. These *consulte di stato*, did not, however, go into operation until the year 1827, after some alterations, by the decree of 14th June, 1824, which provided that the council of Naples should not have more than sixteen members, and that of Sicily not more than eight. In matters relating to both countries, they form a general council. Both have their seat at the residence of the king. A new system of education, projected by the clergy, was introduced by the committee of instruction, to whom was likewise intrusted the examination of all foreign books. The Jesuits were re-established in their privileges, and received houses and money; and other orders were restored, as for example, the Camaldulians, in 1822. Continual arrests and trials for high treason kept the people in a state of irritation. From all parts, search was made for the adherents of the revolution. A severe law against secret societies had already been passed, 3d October, 1822. Notwithstanding, the conspiracies continued. The government, in consequence of the increasing number of prisoners, prescribed to the grand criminal courts a new mode of proceeding, January, 1824. During the space of a few years, this was the fourth time that the king had adopted extraordinary measures by the way of obviating the overcrowding of the prisons. After the death of Ferdinand I., January 5, 1825, his eldest son, till then duke of Calabria, ascended the throne as Francis I. In May and June, he undertook a journey to Milan and Turin, by the way of Genoa, and effected a reduction of the Austrian army in Naples. On his return, by the decrees of 18th and 19th August, king Francis permitted all the Neapolitans, who had quitted their country through fear of political persecutions, with the exception of those who were capitally condemned, to return. In consequence of a deficiency in the revenue, amounting to ten million ducats, and to reduce the paper currency, the government contracted two loans, in 1821, with the house of Rothschild and the English banker Goodhouse, amounting together to twenty million ducats. With a view of bringing coin into the country, the minister contracted a new loan in February, 1824, with the English house of Rothschild, amounting to three million pounds sterling. The regular troops were now disbanded, in consequence of the part which they had taken in the revolution; the militia was also dissolved, and a new army was formed. The dissolution of the militia gave rise to numerous bands of robbers, for the destruction of which, the greatest part of the Austrian auxiliary army marched through the country in moveable columns. A treaty was concluded at Naples, 18th October, 1821, between the emperor of Austria and the king of Naples, in reference to the occupation of the kingdom of the Two Sicilies by an Austrian auxiliary and protecting army of 55,500 men, for three years. The reduction of the forces therein stipulated was gradually executed, after the formation of the Neapolitan army was sufficiently advanced. Seventeen thousand Austrians evacuated the kingdom of the Two Sicilies, in 1823, agreeably to the treaty of Naples of 24th April, 1823. The treaty of 31st August, 1824, fixed the number of auxiliary Austrian troops in the kingdom of the Two Sicilies, at 33,500 men, to remain till the end of May, 1826; accordingly, in the same year, 1824, 5000 Austrians left the kingdom. But as the formation of the Neapolitan army advanced but slowly, on account of the aversion of the Swiss to the Neapolitan service, it was concluded in Milan, during the presence of king Francis I., to maintain other troops in Naples and Sicily, even after the expiration of the treaty of 31st August, 1824. A reduction, however, of the auxiliary forces was then determined upon. May 28, 1825, it was stipulated that the Austrian auxiliary army should remain at the disposal of his Sicilian majesty, until the end of March, 1827; but it might be reduced to 15,000 men, and, in proportion to the augmentations of the Sicilian army, as low as 12,000 men. The troops, retiring by degrees, had all left the country in 1827. In the island of Sicily, confusion and misery of every kind existed in a far greater degree than in Naples. The deficiency in the revenue rose to 600,000 ounces, and the public debt to 1,000,000. The duty on flour was, therefore, doubled. This provoked the people to a bloody resistance. To this was added the mischief done by large bands of robbers. But the Austrian general, count Wallmoden, occupied the island with 12,000 Austrian troops, which traversed the country, and soon restored order. About 16,000 political offenders were arrested. A conspiracy was detected, 10th January, 1822, the object of which was to murder the governor and cardinal archbishop Gravina, and to compel general Wallmoden to sign an order for the evacuation of the fortresses of the country by the Austrians. After this, the Austrians disarmed the country people and the most turbulent citizens of Palermo. Twenty-eight conspirators were arrested, and nine of them shot. A royal ordinance abolished all guilds and corporations of tradesmen and artisans, as dangerous to the public tranquillity. Thus some time elapsed before the regular course of administration could be restored. To this was added the stagnation of all the sources of public prosperity, and further calamities. February 23, 1823, Palermo experienced a dreadful conflagration, and, March 5th, a violent earthquake; Messina, 14th

May, suffered from a tremendous flood. Steam navigation was introduced, in 1824, between Palermo and Naples; a loan of a million ducats, contracted with Rothschild, in 1824, was applied to the improvement of the roads in Sicily. Francis died November 8, 1830; his son Ferdinand II. succeeded.

The kingdom of the Two Sicilies contains, at present, 42,100 square miles, and 7,414,717 inhabitants. The kingdom of Naples contains 31,630 square miles with 5,626,946 inhabitants. (Respecting the island of Sicily, see the next article.) Naples is bounded on the north by the papal dominions, east by the Adriatic, south and west by the Mediterranean. Its soil is principally volcanic, and is covered with the most luxuriant vegetation. Fertile valleys descend on both sides of the Appennines towards the sea. Separate from these lies Vesuvius, 3730 feet high. The rivers are but few, and of moderate size. The volcanic soil is often convulsed by earthquakes. The Monte Nuovo, near Puzzuoli, arose in 1538, and attained, within forty-eight hours, to the height of 2100 feet. Through the grotto of Posilippo, near Naples, you pass, on a lava road, to the Phlegræan fields, whence the ancient poets took the imagery of the war of the giants, and of the infernal regions. Here the pozzolana earth is dug. This desert, as well as the extinct volcano of Solfatara and lake Averno, is bounded by blooming vineyards, with fruit-trees. Here you behold splendid ruins of ancient edifices, on the *Mare morto*, near the Elysian fields. In the charming environs of the capital lies the lake of Agnano, a sunken volcano, and in its neighbourhood the *grotto del Cane*. (See *Naples*.) The climate is warm. In Abruzzo alone the winter is severe. The strawberry ripens in January. The summer is sultry, and brings with it the debilitating sirocco wind from the south-east. The chief productions of this beautiful country, which is, however, not even yet sufficiently cultivated, are excellent wheat, maize, fruits of various kinds, oil, hemp, and flax, cotton, the *nuces Avellanæ* of Pliny, wines (*lachrymæ Christi*), capers, saffron, &c. The Neapolitan horses, the breed of swine, in Abruzzo, the silk, wool, buffaloes, mules, poultry, quails, &c., are celebrated. Among the noxious animals are wolves, tarantulas, and scorpions. Important articles of trade are furnished by the pozzolana earth, marine, and fossil salt, marble, iron, brimstone, jasper, lava, alabaster, alum, saltpetre, &c. There is, however, a deficiency of wood, so that in some places buffalo dung is used as fuel. In this warm country, however, the date-palm, the Spanish cane, the aloe, and Indian fig, thrive. The Neapolitan is lively, intelligent, and good-natured, but impoverished and exasperated by feudal oppression; the defective administration of justice often allows excesses, and the banditti are not yet rooted out. The Neapolitan dialect differs much from the Italian employed in literature. In the south, near Otranto, you will meet with villages inhabited by Arnauts and Greeks (about 40,000). Manufactures are more flourishing in Naples than in Sicily. Naples contains silk, woollen, and cotton manufactories; linen is woven, and metal ware made, besides articles of marble and precious stones. Mining is neglected. The maritime commerce is almost confined to exports of natural productions. The inland commerce is obstructed by the want of good roads, canals, and navigable rivers. The principal commercial towns are Naples, Palermo, and Messina. The people are extremely ignorant, being mostly unable to read and write. Among the better class, however, there are persons of distinguished talents, particularly among the Neapolitans. Antiquities are a favourite subject of study. The people are passionate lovers of music. Cicero, Horace, Ovid, Juvenal, Statius, Tasso, Thomas Aquinas, Filangieri, Galiani, and other men of eminence in the arts and sciences, were natives of Naples. Sicily is the native soil of pastoral poetry. There are universities at Naples, Salerno, Palermo, and Catania. and academies at Naples and Palermo. There are schools for music, and cabinets of works of art at Naples (*Museo Borbonico*, with a particular gallery for the paintings of the Neapolitan school); the Herculaneum museum at Portici; a cabinet of medals and an observatory at Palermo. In Naples, there are four public libraries and forty-five printing-offices. The institution for the deaf and dumb deserves mention; likewise the lunatic hospital at Aversa, which is peculiarly well arranged. The kingdom of Naples (*al di qua del Faro*), in 1817, was divided into fifteen provinces—Naples, with the volcanic islands Capri, Procida, and Ischia; Abruzzo, Ulteriore I. and II., with Aquila, Sulmona, &c.; Abruzzo Citeriore; Terra di Lavoro, with Caserta, Gaeta, Arpino, and the volcanic island Ponza; Principato Citeriore, with Salerno, Amalfi, and Pæstum; Principato Ulteriore; Capitanata; Molise; Bari; Otranto, with Lecce; Basilicata; Calabria Citeriore, and Ulteriore I. and II., with Reggio, Sciglio (where the rock so celebrated among the ancients, under the name of *Scylla*, projects into the strait) and Pizzo, where Murat fell, and which the king called the *most faithful town*, and delared free of taxes, on account of its fidelity. The united kingdom of the Two Sicilies forms, according to the fundamental law of 12th December, 1816, a constitutional monarchy, hereditary in the male and female line. Agreeably to this law, which, however, was never carried into effect, the king possesses supreme executive power. In the absence of the king, a governor (*luogotenente generale*) resides in Palermo, as viceroy of Sicily. This was the crown-prince until 1820. All public offices in the island are to be held by natives. The feudal system is now abolished in Sicily. It was earlier abolished in Naples. It existed at the time of the breaking out of the revolution, July 7, 1820. By the concordate concluded with the pope in 1818, the bond of feudal dependence on the papal see was totally broken, and the papal power in general limited. Nevertheless, the Jesuits were re-established. The duchies of Pontecorvo and Benevento were restored to the papal government. The clergy of the Two Sicilies (twenty-four archbishops, ninety-one suffragan, and twenty-one exempt bishops, 368 abbots, 47,233 secular priests, 25,399 monks, 26,659 nuns, with 3700 parishes, and 19,300 pious institutions, in the kingdom of Naples, and three archbishops, seven bishops, fifty-one abbots and priors, and 70—80,000 clergymen of all kinds, on the island of Sicily) are in possession of nearly a third of the landed property. The inquisition was abolished in Sicily in 1782. In no country are there so many princes (120), dukes (150), marquisses (170), counts and barons, as in Naples. However, the king abolished the *fidei-commissa* (q. v.) in Sicily (1818), which threatened to bring the whole of the landed property into a few hands, and were a great impediment to moral improvement. The great abuses in the judicial administration and in the condition of the prisons (particularly in Sicily) have been gradually remedied. In consequence of the new constitution of the courts of 29th May, 1818, all the proprietary and local jurisdictions have been done away, and the royal courts of justice put on much the same footing as those of France. This system was extended to the island of Sicily, by the decree of 22d December, 1818, and a supreme court of justice established there. A new civil code was drawn up for this island in 1819. The revenue, in 1820, amounted to about twelve and a half million dollars. The new land force amounts to 30,000 men; the naval force comprises three ships of the line, five frigates, four corvettes, and a number of gun-boats. The standing army in Sicily is said not to exceed 8000 men. The orders of knights are, that of St Januarius; the order of Constantine; the order of St Ferdinand, and of merit; and the order *S. Giorgio della riunione*.

Among the latest publications respecting this country are to be noticed the work of the Russian senator, count Orloff, *Mémoires historiques, politiques et literaires sur le Royaume de Naples avec des Notes par Amaury Duval* (5 vols., Paris, 1819), and the *Costituzione del Regno di Sicilia, stabilita dal Parlamento dell' Anno* 1812 (Palermo, 1813, 2 vols.); History of the Kingdom of Naples, from 1800 to 1820 (Darmstadt, 1828), taken from the memoirs of prince Pignatelli Strangoli, and other original sources. Count Forbin's *Souvenirs de la Sicile* (Paris, 1823) present a faithful picture of the beauties of nature, and the degeneracy of society in Sicily. Captain William H. Smith's Memoir Descriptive of the Resources, Inhabitants, and Hydrography of Sicily and its Islands, &c. (London, 1824, 4to.), accompanied by an accurate atlas of charts, is a work of much observation. Rich in interesting research is the work of Blunt—Vestiges of Ancient Manners and Customs, discoverable in Modern Italy and Sicily (London, 1822).—Respecting the noble remains of antiquity in the churches of Messina, Catania, Palermo, and particularly in the cathedral of Montereale, see *Architecture Moderne de la Sicile, ou Recueil des plus beaux Monumens, mesurés et dessinés par J. Hittorff et L. Zanth* (Paris, 1827, 1st *livr.*, fol.)

SICILY (anciently Trinacria and Sicilia); the largest, most fruitful, and most populous island of the Mediterranean, lies to the south of Italy, from which it is separated by the strait or *faro* of Messina, which, in the narrowest part, is only two miles wide. The surface is greatly diversified by mountains and valleys. A chain of mountains extends through the island from east to west; but the most elevated summit is the famous volcano, mount Ætna. The climate is warm, but pleasant, the winters mild, and the heat of summer tempered by sea breezes. Sicily has always been celebrated for its fertility, and is well watered by a great number of streams and rivulets; but the state of cultivation is very backward. The principal products are maize, wheat, other kinds of grain, flax, hemp, vines, saffron, cotton, silk, olives, and various fruits. The exports consist chiefly of silk, corn, salt, olive oil, sumac, wine and fruits. The manufactures, consisting of silk, cotton, linen, and some woollens, are confined to the three large towns of Palermo, Messina, and Catania. According to the last census, Sicily contains 1,787,771 inhabitants, of whom 300,000 are ecclesiastics, or persons living on ecclesiastical revenues. There are in the island 1117 convents, containing 30,000 monks and 30,000 nuns. The nobility of this small population consists of six dukes, 217 princes, 217 marquisses, 2000 barons, and the same number of an order called gentlemen. In 1817, the island was divided into seven intendancies, which takes the names of their chief towns —Palermo, Catania, Messina, Girgenti, Siragosa (Syracuse), Trapani, and Calatanisetta. To Sicily belong the groups of the Lipari (Æolian) islands on the north, and Ægades on the west, Pantellaria on the south, &c. Between the latter island (which is twenty-one leagues from the coast) and Sciacca, in Sicily, a volcanic island, about one mile in circumference and 150—160 feet high, rose from the sea, in the summer of 1831, but disappeared after a few months, and again appeared in the spring of 1832. Notwithstanding the natural wealth of the island, the inhabitants are kept in a state of poverty by the great numbers of the religious and nobles (who possess almost all the land), the heavy duties upon commerce, and the want of secure communication.

Sicily has been, from ancient times, a prize of war. The original inhabitants appear to have been Iberians (Niebuhr, *Roman History*, ch. On the Three Islands); but the conquests and colonies of the Greeks rendered the Greek language prevalent, and, in reality, converted Sicily into a Greek island—a character which it retained till the middle ages. The Carthaginians also founded colonies here. The island was divided between different republics, among which Syracuse was the wealthiest and most powerful, and most celebrated, in ancient history, for its princes (Gelo, Agathocles, Hiero), its wars, and the high degree of cultivation to which it carried the arts and sciences.—See Gärtner's *Views of the Greek Monuments in Sicily* (Munich, 1819). Next to Syracuse, Messana, now Messina, and Agrigentum (Girgenti), were most famous in history. In the middle of the third century B. C., the Romans became masters of Sicily, and remained in possession of it until Genseric, king of the Vandals, conquered it, in the middle of the fifth century A.D. Belisarius, Justinian's general, drove out the Vandals (535); and it remained in the hands of the Greek emperors nearly three centuries, when it was taken by the Saracens (827). The Normans, who ruled in Naples, conquered Sicily in 1072, and received it from the pope as a papal fief. Roger, a powerful Norman prince, took the title of king of Sicily (1102), and united the island with the kingdom of Naples, under the name of the kingdom of the Two Sicilies. (See *Sicilies, The Two.*) But a dislike always prevailed between the Sicilians and the Neapolitans; whence frequent attempts on the part of the former to obtain their independence. This idea was encouraged by the constitution given them by the British, and their old right to a separate parliament. This was the root of the furious outbreak of July 16—20, 1820, in Palermo. (See *Naples and Sicily, Revolution of.*) The pastoral muse has never abandoned this island; and the first notes of Italian poetry were heard in Sicily. (See *Italy*, division *Italian Poetry.*) The idyls of the Sicilian poet Giovanni Meli, published by the abbate Scopa, at Paris, 1820, unite depth of feeling and simplicity with uncommon grace and sweetness;—for the recent works on Sicily, see those mentioned at the close of the article *Sicilies, The*

Two, and, likewise, Bigelow's *Travels in Sicily and Malta* (Boston, U. S. 1831), and Simond's *Travels in Italy and Sicily*.

SICKINGEN, Francis von, a German knight of the palatinate of the Rhine, imperial counsellor and general, one of the noblest characters of the disturbed times in which he lived, was born in 1481, at Sickingen. From early youth, he devoted himself to the military life. The protection of the oppressed was his chief occupation. He assisted many a creditor in procuring what was due him from a powerful debtor. He was the enemy of tyranny, of princes and priests. Without being a scholar, he loved science, and protected men of learning (for instance, Reuchlin, whom he defended against the monks of Cologne); and in his castle, called Ebernburg, many persecuted scholars found a safe asylum. He was a friend of the reformation, and contributed greatly to extend it in the countries which bordered on the Rhine. At last, he engaged in a quarrel with Treves, the palatinate and Hessia, which drew upon him the ban of the empire. He died in 1523, soon after the surrender of Landstuhl, one of his castles, having previously received a severe injury from a fall during a sally.

SICYON (now Basilicon, a village with about fifty families); one of the oldest, most celebrated, and handsomest cities of ancient Greece, lying not far from the gulf of Corinth, on which it had a port. The city was occupied by the Dorians; but the Sicyonians enjoyed so much consideration, that, with the Spartans, they acted as umpires and mediators. They were not less distinguished for their superiority in the arts of peace than the Spartans for their military fame. Sicyon, although powerful by sea, was seldom engaged in wars; but was celebrated for its schools of sculpture and painting. The city, with its environs, formed a small state (Sicyonia) at a very early period; and the names of several princes, who are said to have reigned there, are given. At the time of the return of the Heraclidæ, it formed a part of the kingdom of Argos. It afterwards became a democracy, and the supreme power was several times usurped by individuals. It maintained its independence subsequently to the period of the Persian war, but suffered much from the civil contests among the Greeks, in which it was sometimes in favour of, and sometimes in opposition to, Athens. Sicyon was induced, by the influence of Aratus, to join the Achæan league, in which it acted an important part, and of which it finally shared the fate, and fell under the dominion of Rome.

SIDDONS, Mrs, daughter of Roger Kemble, the manager of an itinerant company of players, was born at Brecknock, in South Wales, in 1755. She commenced her theatrical career as a singer, but soon relinquished that line, and attempted tragedy. In her fifteenth year, she conceived a passion for a young man, who was an actor of all work in her father's company; but her parents, considering her too young to form a connexion with him, placed her, as lady's maid, with a lady in Warwickshire. In her eighteenth year, however, she was married to Siddons, with their consent; and the new-married pair entered into a strolling company. She and her husband played at Liverpool, Birmingham, and other places, gaining both reputation and profit. The theatrical character which she had acquired induced the manager of Drury lane to offer her an engagement, which she accepted. It was, however, only in secondary parts that she appeared. But in a short time she quitted the London boards, in consequence of the scurrilous attacks of a disappointed editor of a newspaper, in whose condemned after-piece she had been unlucky enough to perform. Bath was the next scene of her exertions; and, while there, she improved rapidly, and became a general favourite. The duchess of Devonshire, then in the zenith of her charms and influence, became her friend; and, through the intervention of that accomplished lady, she was again engaged at Drury lane. The re-appearance of Mrs Siddons in London took place on the 10th of October, 1782, in the character of Isabella. Her success was complete. The public were astonished by her powers. She was acknowledged to be the first tragic actress of the English stage, and tragedy became fashionable. The manager gave her an extra benefit, and increased her salary. For that benefit she came forward as Belvidera, and at once exalted her fame, and made a considerable increase to her fortune. Such was the delight which she gave, that the gentlemen of the bar subscribed a hundred guineas as a present to her. She subsequently visited Dublin and Edinburgh with equal applause. In 1784, some calumnies circulated against her, with respect to her conduct towards an unhappy sister, occasioned her to meet with an unkind reception from a London audience, and affected her so much, that she resolved to retire from the stage; but the calumnies were speedily refuted, and her resolution was given up. For more than twenty years, she continued to astonish and enchant the lovers of the drama; and she was often invited to Buckingham house and to Windsor to read plays to their majesties. But her readings there were rather productive of honour than of profit. The fortune which she had accumulated was, however, large, and for many years she enjoyed it in the privacy of domestic life. It was not only as an actress that Mrs Siddons displayed talents. She had considerable merit as a sculptor, in which capacity she produced, among other things, a medallion of herself, a bust of her brother, John Philip Kemble, in the character of Coriolanus, a study of Brutus before the death of Cæsar, and a bust of president Adams. The symmetry of her person was captivating. Her face was peculiarly happy, having strength of features, but so well harmonized when quiescent, and so expressive when impassioned, that most people thought her more beautiful than she was. So great, too, was the flexibility of her countenance, that it caught the instantaneous transitions of passion with such variety and effect, as never to fatigue the eye. Her voice was plaintive, yet capable of firmness and exertion. Her eye was large; her brow capable of contracting with disdain or dilating with sympathy or pity; and her articulation clear, penetrating, and distinct. So entirely was she mistress of herself, so collected and so determined in her gestures, tone and manner, that she seldom erred, like other actors, because she doubted her own powers of comprehension: she studied her author attentively; she was sparing in action; though her acting was the result of the most refined and assiduous attention, no studied trick or start could be predicted; none of those arts in which the actress is seen, and not the character, could be found in Mrs Siddons. What was still more delightful, she was an original; she copied no one, living or dead, but acted from nature and herself. Mrs Siddons, having acquired an ample fortune, took her leave of the stage, in 1812, before an audience which melted into tears on the occasion. She, however, performed, in 1816, for the benefit of her brother, Mr Charles Kemble, and a few nights in Edinburgh, to assist her daughter-in-law. Her greatest characters are well known to have been Catharine, in Henry VIII., and lady Macbeth, in which she manifested a dignity and sensibility rarely equalled. She died June 8th, 1831.—See Campbell's *Life of Mrs Siddons*.

SIDEREAL MAGNETISM, with the believers in animal magnetism, denotes the beneficial influence of the stars upon patients.

SIDEREAL TIME. A sidereal day is the time during which the whole body of fixed stars appears to revolve round the earth. It is found by observing two successive passages of the same star over the meridian. The time from one passage to the other consists of twenty-four hours, each of sixty minutes, each of sixty seconds, &c. Sidereal time is not adapted to the purposes of common life (see *Solar Time*), but is particularly suitable for astronomical observations, on account of its perfect uniformity. Astronomers have sidereal clocks. The sidereal day, and of course each subdivision, is shorter than the solar day, because the sidereal day is determined simply by the rotation of the earth on its axis, and is completed as soon as this rotation is performed; but in the case of the solar day, the earth's revolution round the sun is also to be taken into the account. The earth advances in its orbit nearly a degree each day; and to bring the sun to any particular meridian, it has to make so much more than a complete rotation on its axis as will counterbalance its advance in its orbit. The average amount of this daily advance is 59′ 8″. So much, therefore, must the earth turn on its axis beyond one rotation in order to complete the solar day, which is therefore three minutes fifty-six seconds longer than a sidereal day. Hence the mean solar day is twenty-four hours three minutes fifty-six seconds sidereal time; or the sidereal day is twenty-three hours fifty-six minutes four seconds mean solar time.—See Lalande's *Abrégé d' Astronomie* (Paris, 1795); see, also, the article *Day*.

SIDERISMUS (from σιδηϱον, iron); the name given by the believers in animal magnetism to the effects produced by bringing metals and other inorganic bodies into a magnetic connexion with the human body. Hence we hear of *sideric* bodies and *sideric* power. The former are inorganic bodies, in contradistinction to the animated bodies, which produce somnambulism.

SIDEROGRAPHY; the art of engraving on steel. (See *Engraving*.) The word comes from σιδηϱον, iron.

SIDNEY, Algernon, a celebrated English republican and martyr to liberty, was the second son of the earl of Leicester, by the daughter of the earl of Northumberland. He was born, according to some accounts, in 1617, and to others, in 1622, and educated under the inspection of his father, whom he accompanied in his embassies to Denmark and France. He was also early trained to a military life, and served with some distinction under his brother, lord Lisle, during the Irish rebellion. In 1643, both brothers returned to England, and joined the parliament. In 1645, Algernon was promoted by Fairfax to the colonelcy of a regiment of horse, and, after being present in several actions, was intrusted with the government of Chichester. He was then stationed in Ireland (1646), but soon after returned to England, where he was thanked by parliament for his services, and made governor of Dover. When the high court of justice was formed for the trial of the king (see *Charles I.*), he was nominated a member, but was neither present when sentence was pronounced, nor signed the warrant for the execution. It appears, however, that he vindicated that measure, which has led to a supposition that, in withholding his signature, he only yielded to the influence of his father. A politician so inimical to the encroachments of authority was not likely to acquiesce in a usurpation; and he warmly opposed the designs of Cromwell. During the government both of the protector and his son Richard, he lived in retirement at Penshurst, where he is supposed to have composed his celebrated Discourses on Government. When the return of the long parliament gave expectations of the establishment of a republic, he assumed a public character, and was nominated one of the council of state. He was soon after appointed a commissioner to mediate a peace between Denmark and Sweden, and while engaged in this embassy, the restoration took place. Conscious of the offence he had given the royal party, he refused to return, and remained an exile for seventeen years; and, although occasionally assisted by his family, he found it difficult to support himself in conformity to his birth and rank. At length, in 1677, the influence of his father obtained leave for him to return, with a pardon for all offences. At the time of his return, parliament was urging the king to a war with France; and it was feared by the opposition that Charles II. would agree to it until he obtained the supplies, and would then squander them on his pleasures, or devote them to arbitrary purposes. The English patriots were therefore opposed to this war, and some of the leaders intrigued with the French ambassador, Barillon, to defeat the measure. (See *Russel, Lord William.*) It even appears, according to the Barillon papers, as given by Sir John Dalrymple, that the name of Sidney was among those who received pecuniary aid from France. The testimony thus afforded against a man of high character, and whose sacrifices to principle were notorious, has led to the suspicion of fabrication and interpolation. The death of his father, soon after his return, led him openly to join in the opposition, and he consorted much with the duke of Monmouth and others who held views kindred or similar to his own. In the Rye-house plot he is named as one of a council of six, who were to organize an insurrection in conjunction with the Scottish malcontents. It was, however, for his supposed share in the subordinate conspiracy for assassinating the king, that he was arrested, with lord William Russel and others. After the sacrifice of the latter, he was tried, as the next most obnoxious person, for high treason, before the hardened tool, chief-justice Jeffreys, November 21, 1683. There was no direct evidence against him, except that of the disgrace to nobility, lord Howard, while the law for high treason required two witnesses. To help this defect, the attorney-general had recourse to the expedient of producing passages from some discourses on government, found in manuscript in his closet, which maintained the lawfulness of resisting tyrants, and the preference of a free to an arbitrary government. Although there was no proof that these papers were in his own hand-writing, in defiance both of law and common sense, they were deemed equivalent to a second witness; and, in spite of his spirited defence, he was declared guilty. After his conviction, he sent, by his relation, the marquis of Halifax, a paper to be laid before the king, requesting his review of the whole matter; but it served only to delay his execution about a week. Hume acknowledges the illegality of his condemnation, for which he observes, "the jury were very blamable," but remarks, that an interference by the king might be regarded as an act "of heroic generosity, but could never be deemed an indispensable duty." Sidney was executed on Tower hill, December 7, 1678, when he delivered the sheriff a paper, alleging the injustice of his condemnation, and concluding with a prayer for "the good old cause." He suffered with all the firmness and constancy belonging to his character. One of the first acts of the revolution was to reverse his attainder; and the name of Algernon Sidney has since been held in great honour by the majority of those who maintain the fundamental principles of free government. Burnet speaks of him as of extraordinary courage, steady, even to obstinacy, impatient of contradiction, and a decided enemy to monarchy and church government. His Discourses on Government were first printed in 1698, and reprinted in 1704 and 1751 in folio, and in 1772 in quarto, at the expense of Thomas Hollis, esquire, with the trial letters prefixed. They contain much historical information, and are composed with clearness, acuteness and force.

SIDNEY, Sir Philip, an ingenious writer and accomplished statesman in the reign of queen Elizabeth, was the son of Sir Henry Sidney, of Penshurst, in Kent, where he was born November 29, 1554. After studying at Christ-church, Oxford, and Trinity college, Cambridge, he set off on his travels, at the age of eighteen, visited France, Hungary and Italy, and, returning through Germany and Flanders, arrived in England in 1575. He became a favourite with the queen, who, in 1576, sent him on an embassy to Germany. Having had a quarrel with the earl of Oxford, in consequence of a dispute at a tournament, her majesty interposed her authority to prevent a duel from taking place. Sidney, displeased at the issue of the affair, retired to Wilton, in Wiltshire, 1580, and amused himself with the composition of a pastoral romance, which, in compliment to his sister, was entitled the Countess of Pembroke's Arcadia. In 1581, he again appeared at court, where he distinguished himself in the jousts and tournaments celebrated for the entertainment of the duke of Anjou; and on the return of that prince to the continent, he accompanied him to Antwerp. The prince palatine being invested with the order of the garter in 1583, Mr Sidney was appointed his proxy, when he received the honour of knighthood. In 1585, he projected, in concert with Sir Francis Drake, an expedition against the Spaniards in America; and he had gone to Plymouth to embark on the undertaking, when an express mandate from the queen recalled him to court. Her influence also was exerted to prevent him from being elected king of Poland; "refusing," as Camden says, "to further his advancement, out of fear that she should lose the jewel of her times." He was subsequently appointed governor of Flushing, and general of the cavalry under his uncle, Dudley, earl of Leicester, who commanded the forces sent to assist the Dutch against the Spaniards. September 22, 1586, being at the head of a detachment of the English troops, he fell in with a convoy of the enemy marching towards Zutphen. An engagement took place, in which his party gained the victory, dearly purchased with the life of their commander, who received a shot in his thigh, which shattered the bone. He was carried to Arnheim, where he expired, October 17. His works, besides the Arcadia, consist of the Defence of Poesy; Astrophel and Stella; a collection, entitled Songs and Sonnets; and other poetical pieces. The Defence was republished in 1752 (12mo.), and in 1831 (Boston); and a complete edition of his works appeared in three volumes, 8vo. (London, 1725). His Miscellaneous Works, with a life by W. Gray (one volume, 8vo.), appeared at Oxford (1829). The work by which Sir Philip Sidney is principally known is his Arcadia, which is one of the earliest specimens of the grave or heroic romance. It is a mixture of prose and verse, the latter exhibiting various attempts to naturalize the measures of Roman poetry.—See the *Life of Sidney* by Sir Fulk Greville, and Zouch's *Memoirs of the Life and Writings of Sir P. Sidney* (1808).

SIDON. See *Phœnicia*.

SIEBENBURGEN. See *Transylvania*.

SIEBENGEBIRGE (German, *Seven Mountains*), a group on the right bank of the Rhine, near the town of Königswinter, not far from Bonn, consisting of basalt, granite, porphyry and sandstone. Seven mountains tower above the rest of the group, of which the Drachenfels, close to the Rhine, and presenting a splendid view from the river, is the most beautiful, and the Löwenberg, 1896 feet high, the highest. All of them contain ruins of ancient castles.

SIEGE. The taking of a fortified place may be attempted, 1. by surprise (*coup de main*), in case the defenders should be off their guard, or treachery should enable the assailants to enter the fortress by means of secret or unguarded passages; 2. by a sudden onset (*une affaire brusquée*), usually connected with an assault and scaling of the walls (*escalade*), if the place should not be strongly garrisoned, or not in a proper state of defence—or if the assailants have no time to lose, or are possessed of strength and means sufficient for carrying their point (of late years, this method of attack has been strongly recommended, especially if it can be seconded by an efficacious and skilful use of artillery); 3. by blockade out of gun-shot (see *Blockade*); 4. by a siege, properly so called. The fortress is first blockaded, so as to cut off all intercourse from without; it is then important to examine the nature of the fortification, to discover the strength of the garrison, as well as the means of defence, and, if possible, the weakest parts of the place, in order to mark out a proper plan of attack: after this, the cannon, together with the necessary ammunition and implements for the pioneers, are brought forward; and the other requisites (fascines, gabions, &c.) are prepared and kept in readiness. The engineer who directs the operations must accurately calculate his time, the resistance to be expected, as well as the means at his disposal, and form his plan of attack accordingly. If any detached works are situated before the fortress, their capture becomes necessary to admit the opening of the trenches, at the distance of 500—900 paces from the covered way. After they are properly marked out (*tracées*), several columns of pioneers, furnished with fascines and instruments for digging, and defended by regular troops, advance (commonly by night) towards the fortress as far as the spot designated for the trenches, and there immediately engage in opening a trench.

Each labourer places his fascine before him, throws the ground over it, and thus a kind of breastwork is formed, constituting the first parallel, where the forces directed against the fortress may be collected. The besieged, by sallies and counter operations of every kind, strive to drive off the labourers and to destroy their work, while, on the other hand, the besiegers make efforts to establish themselves more and more securely, to raise batteries, and then, by means of trenches, dug for this purpose, and new parallels, which more and more closely encircle the fortress, to approach the moat, while the artillery is kept constantly playing from the batteries on the garrison as well as the works and guns of the besieged. With this the bombardment from the mortar-batteries is usually combined (see *Battery)*, for the purpose of dislodging the garrison from their works, of dismantling the works themselves, and of destroying buildings, magazines, &c. From the last parallel, which approaches very near the moat of the fortress, the besiegers prepare to cross the moat, andendeavour to make breaches. Here likewise mining operations (see *Mine)* are carried on, whenever they are found advisable. The moat is crossed in saps, or covered passages of a similar kind, and, should it be filled with water, on rafts, bridges, &c. When at last the breaches are practicable, the works of the strong-hold as much as possible demolished, the garrison and their artillery impaired, then follows the storming or scaling of the walls.—*To raise the siege* of a fortress, is to compel the enemy to retire from the place. They may be forced to this by inundations, if the situation of the place admits of them; by want of provisions, if the surrounding country has been desolated, or the convoys intended for them be captured; or, finally, by assault. If it is impossible to drive away the enemy, a temporary interruption of the siege is attempted, in order to introduce provisions or fresh troops into the fortress. This is generally done by a sudden attack on the lines of the besiegers, and forcing a way through them, with the co-operation of the besieged.

SIENITE; one of the primitive rocks, differing from granite chiefly in the substitution of hornblende for mica; but feldspar forms its most abundant ingredient, and is often red. When the quartz and hornblende are fine-grained, and the feldspar in distinctly imbedded crystals of considerable dimensions, the rock is called *porphyritic sienite*, or *sienite-porphyry*. Sienite is sometimes unstratified, though more commonly manifesting a tendency to the columnar structure. It embraces no foreign beds. It occurs in unconformable and overlying stratification, over granite, gneiss, mica-slate and clay-slate. It is equally prolific in metals as porphyry. In the island of Cyprus, it affords much copper. Many of the important silver and gold mines in Hungary are situated in sienite. In the forest of Thuringia, it affords iron. It abounds in Upper Egypt, at the city of Syene, in the Thebaid, at the cataracts of the Nile, whence it derives its name. The Romans brought it thence to Rome, for architectural purposes and for statuary.

SIENNA, OR SIENA; an ancient city of Tuscany, the capital of the province of Sienna. Being built on three eminences, the streets are extremely uneven, winding, and narrow, so that the chief part of the town is impassable for carriages. The only handsome public square is that in which is the town-house, and which contains a beautiful fountain. The esplanade is a fine shady avenue leading to the citadel, the ramparts of which, planted with trees, and laid out in the form of terraces, afford several interesting points of view. The cathedral of Sienna is a magnificent marble structure in the Gothic style, built in the thirteenth century, by Giovanni Pisani, and accounted inferior to none in Italy, except St Peter's at Rome. The town-house is a large building, also in the Gothic style, and surrounded with porticoes. Adjoining is the theatre, rebuilt since 1750. There are in Sienna several family mansions, or palaces, but none of remarkable architecture. The manufactures of Sienna comprise woollen, leather, paper, and hats, but all on a small scale. This town is the seat of a university. Sienna lays claim to great antiquity, but it was long a petty place. Its prosperity was greatest during the middle ages, when it enjoyed an extensive commerce, and is said to have had a population of 150,000. It long maintained itself as an independent republic; but, intestine divisions favouring the designs of foreign powers, it became successively subject to French and Spanish invaders. Population, 24,000; lon. 11° 10′ 15″ E.; lat. 43° 22′ N.

SIERRA (*Spanish*), SERRA (*Portuguese*); a chain of mountains.

SIERRA LEONE; a country of Western Africa, on the Atlantic, distinguished for the colony formed there by the British nation, rather from motives of philanthropy than from those of commercial advantage. It is traversed by a considerable river, called the Mitomba or Sierra Leone. The name is derived from a ridge of mountains, which rises near the southern bank of the river. This country equals, in fertility and populousness, any other in this part of Africa. It consists generally of one vast, almost impenetrable forest, only particular spots of which have been cleared and cultivated. Rice is raised wherever the ground is sufficiently watered for its production, and forms the constant food of the rich; but the poor content themselves with millet, yams, and plantains. There is great abundance of the most delicate fruits. Elephants' teeth and civet are brought to the coast. The woods and mountains are infested with wild animals, particularly lions, from the multitude of which the country appears to have derived its name. There are swarms of insects, flies, mosquitoes, and particularly ants, the white species of which commit extraordinary devastation. The serpent species are also very numerous. The rivers, besides yielding an ample supply of fish for food, contain large alligators, and the manata or sea-cow. The natives of this country are not of so deep black a complexion as those of cape Verd, nor have they the flat nose of the negro race to such a degree. The character of the different tribes varies greatly.

The Portuguese were the first who discovered and formed settlements on the river Sierra Leone. Towards the close of the eighteenth century, the British began to turn their views towards Sierra Leone, with a view to colonization, for the more effectual abolition of the slave-trade, by raising up an African colony, whither the slaves might be sent as freemen. Lord Mansfield having decided, in 1772, that a slave who sets foot in Britain becomes free, a number of blacks in England left their masters, and were wandering about in a desolate condition. Granville Sharp formed the plan of transporting them to Africa; and, the aid of the government having been obtained, they were landed (1787) upon a district purchased from the king of Sierra Leone. These negroes and the white females sent with them were mostly of indifferent characters, and a severe mortality ensued among them. In 1792, about 1200 negroes, who had been seduced from their masters in the United States during the revolutionary war, were also landed at Sierra Leone; and several years later the colony was increased by 550 Maroons from Nova Scotia. Little progress, however, had been made in the objects for which the colony was formed, and, in 1807, it was surrendered into the hands of the crown. At that period Great Britain received permission from several powers to treat as pirates such of their subjects as should be found engaged in the slave-trade north of the line; and the liberated negroes seized by her cruisers were placed at Sierra Leone. For the first six months they receive a daily allowance from the government, after which lands are assigned them, and they are left to support themselves. The number thus liberated has been about 40,000; and although their wild and improvident habits have thrown many difficulties in the way of the benevolent exertions of the British authorities, recent accounts give decided proofs of great improvements in the spirit and condition of the colonists. Freetown, the principal place of the colony, has an excellent harbour on the river Sierra Leone, about six miles from the sea (lat. 8° 32′ N.), and upwards of 6000 inhabitants. Regent's town, six miles south of Freetown, founded in 1816, has a population of 1300; and in the vicinity are several villages, with the more distant stations of Waterloo, Wellington, and Hastings. Bathurst, on the Gambia, is a settlement also connected with this colony.

SIERRA MORENA. See *Morena, Sierra.*

SIERRA NEVADA (Spanish, *Snowy Range*); a chain of mountains in Spain, the most elevated range in the peninsula, which derives its name from the perpetual snow that covers its loftiest summits. It extends through Granada and Andalusia, from west to east, and terminates on the shores of the Mediterranean, in several promontories, of which that of Gibraltar is the most remarkable. The highest peak is Cumbre de Mulahacen, which has an elevation of nearly 14,000 feet. The principal river which descends from the Sierra Nevada is the Xenil. See *Granada.*

SIESTA (Spanish, for *noon*); the heat of the noon; whence it came to signify the rest or nap taken after dinner during the season of heat.

SIGÆUM; a celebrated cape on the coast of Asia, with a town of the same name, not far from Troy, near which the Greeks encamped during the Trojan war. Here Achilles drew his fleet on shore, and here he was buried with his friends Patroclus and Antilochus. Large mounds of earth are still to be seen here, which have been taken for their tombs. A remarkable inscription has been found upon a block of marble at Sigæum, of which a part, written in the Æolic dialect, is thought to be prior to the time of the poet Simonides. The people in the neighbourhood considered this monument as a sort of palladium; and the sick laid or seated themselves upon it, so as almost to obliterate the inscription. However, it has been copied entire, and was carried to England by lord Elgin.

SIGHT. See *Eye,* and *Optics.*

SIGNALS; certain notices used to communicate intelligence to distant objects. At sea, they are made by firing artillery, displaying flags and pendants, lanterns, or fire-works, as rockets and false fires; and these are combined by multiplication and repetition; by which combination of preconcerted signals, the admiral conveys orders to his fleet, every squadron, every division, and ship, of which, has its particular signal. Every ship to which a signal is made, immediately answers it by hoisting some particular flag, to show that she has received and understands the order thereby conveyed. All signals at sea may be reduced to three different kinds, viz. those which are made by the sound of particular instruments, as the trumpet, horn, or fife, to which may be added striking the bell, or beating the drum; those which are made by displaying pendants, ensigns, and flags of different colours, or by lowering or altering the position of sails; and, lastly, those which are executed by rockets of different kinds, by firing cannon or small arms, by artificial fire-works, or by lanterns. All signals, to be effectual, must be simple, and composed in such a manner as to express the same signification, at whatever mast-head or yard-arm they may be displayed. They should be issued without precipitation, exposed in a conspicuous place, so as to be seen at a distance, and sufficient time should be allowed to observe and obey them. Signals are very numerous and important, and are all communicated in the instructions sent to the commander of every ship of the fleet or squadron, before their putting to sea. Few subjects have more seriously engaged the attention of nautical men. In the land forces, signals are made by the firing of cannon, or by sound of trumpet. Balloons are sometimes used for signals. For the *Telegraph,* see that article.

SIGNATURE; among printers, a letter or figure at the bottom of the first page of a sheet or half sheet, by which the order of the sheets is designated, so as to guide the binder. Every successive sheet has a different letter or figure; and, where letters are employed, if the sheets are more numerous than the letters of the alphabet, then a small letter is added to the capital one, as, A a, B b, &c. In large volumes, the signatures are sometimes composed of letters and figures, thus, 5 A, 5 B. It is now becoming more common, however, to use only figures.

SIGNET; one of the king's seals, made use of in sealing his private letters, and all grants that pass by bill, signed under his majesty's hand. It is always in the custody of the secretaries of state. See *Seal.*

SIKHS, OR SEIKS; a religious sect in Hindoostan, which professes the purest Deism. It is chiefly distinguished from the Hindoos by worshipping one only and invisible God. It was founded by the estimable Nanac Shah, of the caste of Cshatriyas and the Hindoo tribe of the Vedis, who was born A. D. 1469, in the village of Talwandi (now the town of Rajapoor), in the province of Lahore. When Nanac was very young, he met some fakirs, who converted him to the Nagornai worship, which consists in the adoration of one God. His lively imagination made him dissatisfied with traffic; and, to gratify his thirst for knowledge, he travelled through Hindoostan, Persia, and Arabia, visited Medina and Mecca (the Mohammedan places of pilgrimage), and the sacred sects of the Hindoos in Vatala, and the Picos (Mohammedan saints) in Moultan. Afterwards he became acquainted with the system of the Ssufi, and adopted their doctrines. He read, particularly, the works of a Mohammedan named Cabik, belonging to this sect, who enjoined, in all his writings, universal philanthropy, and, particularly, religious toleration. Nanac now renounced all worldly business, and consecrated his life to the purest devotion. He entertained the noble and benevolent idea of effecting a union between the Hindoos and Mohammedans, by introducing simplicity of faith and purity of morals. Hence he treated both religions with respect, laboured to remove only what was superfluous and dissonant, and to lead the people to a practical religion, to a pure worship of God, and love to mankind. Thus he used to say, "Hundreds of thousands of Mohammeds, millions of Brahmas and Vishnoos, and hundreds of thousands of Rahmas, stand before the throne ot the Almighty, and they all die. God alone is immortal. He only is a good Hindoo who is just, and a good Mohammedan whose life is pure." Nanac died about 1540, at Kirtipur, where he lies buried on the banks of the Ravee. Hence Kirtipur is deemed a sacred place by the Sikhs; and a relic of Nanac's dress is preserved in his temple there, which is shown to pilgrims. The ennobling religion established by Nanac, and the benevolence of his doctrines, corresponded to the purity of his whole life. Far from deceiving his adherents with pretended miracles, he replied to the Yogiswares (to whom a dominion over the powers of nature, procured by self-torture, is attributed in Hindoostan), when they importuned him to perform a miracle, "I have nothing worth showing. A holy teacher has no defence but the purity of his doctrines. The world may alter, but the Creator is unchangeable." As a governor and priest, he exercised, during his life, a spiritual and temporal dominion over his disciples. At his death, he transferred the power, not to his sons, but to a favourite disciple named Lehana, whom he had himself initiated into his doctrines, and dressed in the sacred garb of a fakir. Of his successors in the government of the Sikhs, Arjun gave stability to the religion, and unity to its professors, by collecting the writings of Nanac, and publishing the *A'di Grant'h*, the first sacred book of the sect. But this drew upon him the notice and the jealousy of the Mohammedan government, and he was put to death. Eager to avenge his father's death, Har Govind, the son and successor of Arjun, transformed the Sikhs from peaceful believers into valiant warriors; and, under his reign, and that of his posterity, a bloody contest was maintained between them and the Mohammedans, till the day of Behadur's execution, whose son, Guru Govind, was forced to retreat with his adherents to the Punjab, where a Hindoo chief kindly entertained him, and gave him Mekhamel, on the banks of the Setledge. Guru Govind established there the state of the Sikhs, destroying among them the Hindoo distinction of castes, and giving equal rights to the lowest Soodra and the highest Brahmin. This procured him great accessions to the numbers of his disciples, whom he excited to seek for happiness in this and the future world by destroying the tyrannical Mohammedans. From this time, in consequence of their heroic conduct during the protracted contest with their oppressors, Guru Govind's followers received the title of Sikhs or lions, which before had been confined to the Rajaputs, as the first military order among the Hindoos. This ruler, equally great as a soldier and a lawgiver, wrote the *Dasema Padshah ke Grant'h*, or the book of the tenth prince (so called because he was the tenth ruler of the Sikhs from Nanac). Besides treating of religious subjects, it contained also the history of the author's exploits. It is regarded by the sect with the same veneration as the *A'di Grant'h* of Arjun. Guru Govind directed the Sikhs, in order to distinguish them for ever from Mohammedans and Hindoos, to wear a blue dress, to let their hair grow, and to be always armed. To make his religious institutions more stable, he founded a religious order, the *acalis* (immortals), and assigned the members of it a *bonga* (monastery) by the sacred fountain at Emoilser, on the income of which they were supported. To these *acalis* he committed the care of converting and initiating new Sikhs; and in their hands still rests the supreme direction of all the religious and civil affairs. Guru Govind was the last head of the Sikhs; for a prophecy limited the number of the rulers to ten; and as he was the tenth ruler after Nanac, he said to his friends, on his death-bed, "I commit the state to God, who never dies." Hence the Sikhs suppose that their state is under the peculiar care of the Deity. Their government, therefore, is a pure theocracy. The popular faith would prove an insurmountable obstacle to any one who should attempt to subject the Sikhs to his rule. After the death of Guru Govind, the Sikhs gradually yielded to the superior power of the Mohammedans; and even Banda, one of their most heroic leaders, after a fearful struggle, was taken prisoner in the fort of Lagab, with all his followers, sent to Delhi, and put to death with the most barbarous tortures. To exterminate at length the hated sect, a price was set upon their head by the Mohammedan government, and every adherent of it, who could be taken, was put to death. But they suffered, with the greatest firmness, the pains of martyrdom, often courting, rather than fleeing from them. Nothing could induce them to renounce their faith; and a Mohammedan writer has stated that no Sikh was taken on the pilgrimage to Amritsar (the holy place of the Sikhs) who ever abjured his religion to save his life. A very small number of the Sikhs escaped to inaccessible mountains, and faithfully preserved the doctrines of their fathers, and an inextinguishable hatred towards their persecutors. After Nadir Shah's return to Persia, they ventured to leave the mountains; and, taking advantage of the confusion into which Nadir's expedition had plunged Hindoostan, they subdued all Lahore. At present, the territory of the Sikhs extends from 28° 40′ to beyond 30° north latitude, and comprehends all the Punjab, a part of Moultan, and the largest portion of the country lying between the Jumnah and the Setledge, or the north-western corner of Hindoostan, containing 69,000 square miles, and 4,000,000 inhabitants. A few chiefs, who form a diet at Amritsar, and deliberate on subjects of general interest, under the direction of the *acalis*, rule over portions of country of greater or less extent. According to the account of general Malcolm, who was in the Punjab with the British army in 1805, and to whom we are indebted for the most accurate information concerning this interesting sect (see vol. xi. of the *Asiatic Researches*, containing his *Sketch of the Sikhs*, also printed separately in 1812), they are able to bring into the field 100,000 horse. Their present governor, or *maha raga*, is said to have subjected portions of Afghanistan and Cashmire to his rule. In the separate districts, subordinate chiefs, or *sirdars*, possess unlimited power. Lahore is the residence of the chief ruler, and contains 100,000 inhabitants. The city of Amritsar is the great depot of Cashmere shawls and of saffron.

SILENUS; the tutor and companion of Bacchus; according to some, the son of Mercury, or of Pan, by a nymph; according to others, he sprang from the blood of Uranus. According to Pindar, his wife was the nymph Nais; according to others, a nymph of Malea, in the island of Lesbos, who bore him the Arcadian Centaur Pholus. He educated Bacchus, instructed him in the sciences, and was ever afterwards his constant companion. He loved the inspiring beverage of his pupil's invention so well, that he was generally intoxicated; and in this plight he was found by two young Satyrs, who bound him with garlands, and compelled him to sing. Midas caught him in the same condition, and entered into a philosophical conversation with him. In the war of the giants, Silenus aided the gods, and terrified their enemies by the braying of his ass. A whole race of Silenuses sprang from him. The name is often applied to old Satyrs, of a cheerful, good-natured disposition. They are represented with a curly beard, a low forehead, and a bald head. The chief of the race is the companion of Bacchus above described, known by the cantharus or bottle which he bears. He is often also distinguished from the other Sileni, by being mounted on an ass, or by his accompanying Bacchus, and is frequently represented holding the infant Bacchus in his arms. He sometimes also appears treading out grapes, and covered with hair. In the latter case, a caricature is intended.

SILESIA (in German, *Schlesien*); formerly a duchy belonging to Bohemia, now divided, politically, between Prussia and Austria, and geographically, into Upper and Lower Silesia. The *Prussian* province of Silesia (15,264 square miles; population 2,396,551) borders on Posen and Poland to the east, on the Austrian territories to the south, and on Saxony and Brandenburg to the west and north. (See *Prussia.*) The southern part of the province is mountainous, being intersected by different ridges of the Sudetic chain. (q. v.) Towards Brandenburg and Posen it is level, but in part marshy and sandy, although throughout adapted to tillage. The principal river is the Oder. The soil of Silesia is fertile, yielding corn of all sorts, fruits, and tolerable wines. The mountainous parts are covered with wood, or afford good pasturage and meadow land. Flax is raised in large quantities, and affords an important article of manufacture and trade, and madder, hemp, hops, and tobacco are among the productions of the province. The wool of Silesia is of the best sort produced in Prussia. Among the mineral productions are iron, copper, lead, some silver, sulphur, vitriol, &c., and there are mineral waters in several places. Linen is the principal article of manufacture, and owes its excellence to the inspection system, which has been introduced here. Cotton and woollen goods, and leather are also manufactured to a great extent. Silesia is divided into three governments—Breslau, Leignitz, and Oppeln. The inhabitants are chiefly Lutherans and Catholics, with some Calvinists, Hussites, Herrnhutters, Jews, &c. There is a university in Breslau, the capital of the province, with two theological faculties, one for Catholics and the other for Protestants, and numerous gymnasia, or high schools, in the large towns. The revenue is about six million dollars.

Austrian Silesia consists of the southern part of the old Silesian duchy, which was left to Austria by the peace of Hubertsburg, in 1763. It is divided into the circles of Teschen and Troppau, and attached to the Moravian *gubernium* of Brünn. Population, 350,000; square miles, 2500. It is mountainous, and although the soil is not in all parts favourable, it is rendered productive by the industry of the inhabitants, who are also extensively engaged in linen, cotton, and woollen manufactures. In the sixth century, this country was occupied by Sclavonians, who drove out the Lygii and Quadi, and thus annexed it to Poland. It was afterwards divided into a great number of petty principalities, and in the fourteenth century, it became a dependency of Bohemia. Although, in consequence of its annexation to Bohemia, it came to be considered a part of Germany, it never actually formed a member of the empire. For the more modern history of Silesia, see *Frederic II.*, *Seven Years' War*, and *Prussia.*

SILESIAN POETS. See *German Poetry.*

SILESIAN WARS. See *Frederic II.*, *Maria Theresa*, and *Seven Years' War.*

SILEX, OR SILICA. The mineral species quartz, it was mentioned under that article, consists almost exclusively of silex. It also forms a principal ingredient in nearly all the earthy minerals, and was regarded as one of the primitive earths, until after the discovery of the composition of the fixed alkalies by Davy, when it was ascertained, by this philosopher, to consist of oxygen and an unknown base, which has been called *silicon*, or *silicium.* If we ignite powdered quartz with three parts of pure potash in a silver crucible, dissolve the fused compound in water, add to the solution a quantity of muriatic acid, sufficient to saturate the alkali and evaporate the dryness, we shall obtain a fine, gritty powder, which, being well washed with hot water, and ignited, will yield pure silex. By passing the vapour of potassium over silex, in an ignited tube, we obtain boron, the basis of the earth. Thus obtained, as well as by several other methods, silicon is of a deep brown colour; is a non-conductor of electricity: it stains the fingers, and adheres to every thing that comes in contact with it. Like carbon and boron, it may be exposed to a very high temperature in close vessels, without fusion; but it becomes harder, the greater the heat to which it has been subjected. By this treatment, its properties are very materially altered. Before it has been heated, it is readily combustible in the air, and burns with a very lively flame. By this combustion, about one third of it is converted into silica, while the rest is preserved by the silica formed, which prevents the unburnt portion from coming in contact with the atmosphere. Silex, or silica, is the only compound of silicon and oxygen with which we are acquainted. It is a white, tasteless powder, feeling gritty between the teeth, and having a specific gravity of 2·65. When originally formed by the combustion of silicon, it is so soluble in water, that the liquid, when concentrated, gelatinizes. But after it has been exposed to heat, it loses its solubility altogether. When silex is mixed with thrice its weight of potash, or with a quantity of carbonate of potash, containing thrice as much potash as the weight of silex employed, and the mixture is exposed to a strong heat, it fuses, and assumes, on cooling, the appearance of glass. This glass dissolves in water. If to an aqueous solution of it we add as much muriatic acid as will saturate the alkali, and concentrate the solution sufficiently, the silica assumes the form of a white translucent jelly. This characterizes silica. If we evaporate the whole to dryness, and wash off the salt of potash from the dry mass, the silica remains behind in the state of a very fine powder. Silex consists of about 48 silicon, and oxygen 52. It may be subjected to a very violent heat, without suffering any change; there is no difficulty in causing it to melt, however, before the compound blow-pipe. Though silex does not redden vegetable blues, yet it enters into definite compounds with the different bases, and forms saline compounds, which are distinguished by the name of *silicates*, and is hence called *silicic acid* by some writers on chemistry. Like other weak acids, it is capable of entering into a great variety of combinations with bases. The combinations which it forms are frequently so intimate, that no other acid is capable of removing the base and setting the silica at liberty. The different kinds of glass consist of two or more silicates melted together. Silicon burns vividly when heated in chlorine gas, and the compound formed is a colourless liquid, which is a *chloride of silicon*. It evaporates almost spontaneously, in the form of a white vapour, when exposed to the open air. It boils at a temperature below 212°. It reddens litmus paper very strongly. When dropped into water, it swims on the surface of that liquid. It is gradually dissolved in the water, but deposits, at the same time, a little silica. Silicon unites with fluorine, and forms an acid gas, which is called *fluosilicic acid*. It is easily obtained by mixing together fluor spar and glass, or quartz, both in fine powder, in a small retort, and adding a sufficient quantity of sulphuric acid, to form the whole into a semi-fluid mass. When heat is applied to this mixture, fluosilicic acid comes over in the form of a transparent invisible gas. This gas is rapidly absorbed by water, while silica is deposited in a gelatinous state. Its specific gravity is 3·6. It consists of fluoric acid 17·6, silica 27·2. When potassium is heated in it, combustion takes place, and a chocolate-coloured substance is formed, which differs in its nature, according to the proportion of potassium employed. Fluosilicic acid gas combines with twice its volume of ammoniacal gas, forming a volatile salt. Silicon and carbon combine, when they come in contact in a nascent state. The *carburet* formed is a dark brown powder. *Sulphuret of silicon* is formed by heating silicon in the vapour of sulphur, and the union is attended with the phenomena of combustion. It is a white, earthy-looking substance, which is instantly converted by the action of water into sulphureted hydrogen and silica. Silicon is more allied to carbon and boron than to the metals.

SILHOUETTE is the representation of the outlines of an object filled with black colour, in which the inner lines are sometimes slightly drawn in white. The name comes from Etienne de Silhouette, French minister of finance in 1759. He strove by severe economy to remedy the evils of a war which had just terminated, leaving the country in great exhaustion. At the end of nine months, he was obliged to leave his place. During this period, all the fashions in Paris took the character of parsimony. Coats without folds were worn; snuff-boxes were made of plain wood; and, instead of painted portraits, outlines only were drawn in profile, and filled with Indian ink, &c. All these fashions were called *à la Silhouette;* but the name remained only in the case of the profiles, because the ease with which they may be drawn, or cut out of black paper, makes them popular, though, considered as works of art, they have little value. Some faces—those with a marked profile—are easily taken in this way, whilst others lose their character entirely, particularly those whose traits are well harmonized. In general, the extremes of expressions, as the expression of great savageness or sternness, great mildness or obstinacy, deep reflection, or great stupidity, are those most easily given in this mode. But the expression of blended imagination, thought, and goodness of disposition, is not easily conveyed in profile. On the whole, the silhouette expresses more the original disposition of the mind, than its cultivated character. These representations may be taken very well from the shadow of a person on a paper held on the wall; and in order to make the shadow more steady, it is well to rest the head on a book or the like, put between the face and the paper. The paper is then cut according to the outline of the shadow, and the outer surface pasted on black paper. The likeness can be taken still better, and of any size, by means of an instrument called a *pantograph*. A frame with a glass, on which paper slightly oiled and well dried is fastened, attached to a chair on which the person sits, whose likeness is to be taken, is also of much advantage. The invention of the silhouette, in ancient times, is said to have given rise to the art of painting. This invention is ascribed to the daughter of the potter Dibutades, who drew the outline of her lover's shadow on the wall. The time of this invention may be placed at the renewal of the Olympic games, shortly before the expulsion of the Bacchiades from Corinth, about 776 B. C. Sicyon and Corinth were the first places where painting flourished. Crato of Sicyon, Philocles of Egypt, and Cleanthes of Corinth, are mentioned as inventors of the monochromes, they having filled the outline with colours. The silhouettes were soon applied to large objects; thus Saurias of Samos drew the shadow of his horse on a wall. The estimation of these drawings with the ancients, the beauty and delicacy with which they were executed, may still be seen from the Etruscan vases.

SILICATE of MANGANESE; the name of a chemical family in mineralogy, which consists of two mineralogical species, viz. the *Fowlerite* and the *manganese spar*, or siliceous oxide of manganese. The *Fowlerite* occurs in feld-spar-looking crystals, differing, however, in the value of its angles, from feld-spar. Its angles are 95° 0′, 121° 0′, and 113° 0′. Its hardness is the same as feldspar; specific gravity 3·5 to 3·8; colour flesh-red. It is fusible with difficulty, and tinges borax red. It consists of

Silex,	29·48
Protoxide of manganese,	50 58
Peroxide of iron,	13·22
Water,	3·17

The *manganese spar* occurs massive, fine, granular, and, rarely, somewhat fibrous; colour rose-red; lustre intermediate between pearly and resinous; translucent; hardness but little inferior to feldspar specific gravity, 3·5. Heated before the blow-pipe, it becomes dark-brown, and melts into a reddish globule. It tinges borax hyacinth-red. It consists of

Silex,	40·58
Protoxide of manganese,	38·92
Protoxide of iron,	13·50
Water,	3·
Carbonic acid,	3·23
	99·23

It is found in primitive districts, usually in connexion with beds of iron ore. Localities of it exist in the Hartz, in Sweden, and in Devonshire, England. This species is sometimes wrought into articles of ornament. When polished, its colour and lustre are extremely delicate.

SILIUS, Caius, surnamed Italicus, was born in the reign of Tiberius, about the year fifteen. The origin of his surname is uncertain. At Rome, he applied himself to the bar, and became a celebrated orator and advocate. He was consul at the time of Nero's death, and incurred some reproach for assisting in that tyrant's prosecutions, but acquired honour from his conduct in the proconsulate of Asia, assigned to him by Vespasian, from which he retired into private life, and collected books, statues, and busts of eminent men. He finally retired to his seat in Campania, where, being seized with an incurable ulcer, he put an end to his life by starvation, in his seventy-fifth year. The only work of Silius which has reached modern times, is an epic poem on the second Punic war, in sixteen books, written with more diligence than genius. It contains, however, occasional splendid passages; and his description of the passage of Hannibal across the Alps is particularly admired. The best editions are those of Drakenborch (1717, 4to.), and of Ruperti (Göttingen, 1795—8, 2 vols., 8vo.).

SILK, a well known species of glossy thread, spun by several species of the larvæ or caterpillars of the insects classed by Entomologists under the genus *Phalæna*. Of these, the species *Phalæna Altus* produces the greatest quantity of thread, but the species most commonly employed in Europe is the *Phalæna Bombyx*. The silk worm, like all others of its class, undergoes, during the course of its existence, several transformations. The changes of form it assumes are four. The eggs of the silk worm are deposited during the summer, by the female, at this period in the form of a grey moth. The eggs, when first laid, are in size similar to a grain of mustard seed and of a yellow colour, which colour, in two or three days, changes to a bluish cast. These eggs are covered with a liquid which glues them to the cloth or paper on which the female is made to deposit them, but from which they are freed easily by immersion in cold water; and being afterwards dried and kept at a proper temperature, they may be preserved during the winter and spring without danger, until the food on which they feed, when in a more perfect state, is ripe for consumption. The temperature at which the eggs ought to be kept must not vary many degrees from 55° Fahrenheit. The eggs are preserved by being tied up in flat packages, containing about an ounce each. For hatching in France they are tied round the girdles of the women during the day, and placed under their pillows at night. When otherwise treated, they are placed in a room heated gradually by a stove up to a temperature of about 80°. In the course of eight or ten days the eggs are hatched. The worms are now covered with sheets of paper on which leaves of the mulberry tree have been spread. The sheets of paper are perforated with numerous small holes, through which the worms make their way up to the mulberry leaves, their natural food. The leaves soon become covered with worms. These leaves with the worms are now carried off the sheets of paper, and laid upon shelves of wicker work covered with brown paper. This is repeated twice a day, until all the hatched worms are laid on the wicker work. In a well appointed nursery, this ought to be completed in from two to three days. Great care and attention is required on the part of the nurses to keep the room at a proper temperature and well ventilated, and to supply the worms at proper intervals with fresh leaves, with as little trouble to the animal as possible, as the silk worm is remarkable for its indisposition to move from its place; a circumstance which greatly lessens the labour of the attendants.

The silk worm, when first hatched, is black in the colour, and in length does not exceed one fourth of an inch. The desire for food is the first symptom it exhibits of life, and at this period it is more active than at any other. When about eight days have elapsed after its hatching, its head becomes considerably enlarged, and it turns sick, refuses food, and remains in a state of lethargy for about three days. This sickness would appear to arise from the pressure of the animal's skin, which has become too tight for the increased bulk of its body. Indeed the very great difference in the size of the worm, from the beginning to the end of its caterpillar state is so great, that nature has furnished it with several skins, each of which it casts in succession. The necessity of these wise arrangements will be the more apparent to the reader, when he is informed, that in the short space of one month, the weight of the worm is increased several thousand times. When the process of casting the skin has been performed, the animal again revives and betakes itself to food. It is extremely interesting to watch the several steps in the process of moulting. In order to diminish the action of the skin to be cast, upon the new skin, the animal exudes a lubricating humour between them, which renders them more easy of separation. Small silken threads are likewise emitted, which bind the skin to the spot on which it now rests. These acts call forth considerable exertions, and after they are performed, the worm rests quiet for a little to recover its energy. It now rubs its head among the leafy fibres surrounding it, and breaks through the skin of the head, then its front legs, and afterwards the whole body. On examining the cast skin, it will be found that the covering has been thrown off the animal entirely, even to the jaws and teeth. Sometimes the outer skin is not entirely detached, in which cases the animal generally dies. In five days after the first moulting, the worm has acquired considerable size, being now generally about half an inch long, at which period it again sickens, and a second moulting takes place. In five days more, it has acquired the length of three fourths of an inch, and a third moulting comes on. In five days more, the worm casts its fourth and last skin, having increased in length to about two inches. It now devours much food, and increases greatly in magnitude for ten days, when it has reached its full growth of about three inches in length.

The worm may now be more advantageously examined as to its structure than at any other period. Its body is begirt by twelve rings, which approach to or recede from each other during the motion of the animal. It is furnished with six scaly legs on front, and ten membranous ones, called holders, behind which latter are terminated by small hooks.

The mouth is very large compared to the size of the body; it opens vertically, unlike the mouths of most animals, and the jaws are formed after the manner of the teeth of a saw. There are nine breathing holes on each side of the body, and there are likewise seven eyes on each side of the head. Below the jaw there are two small orifices, through which the worm ejects its silken filament.

At the period of the worm's existence of which we have been speaking, it shows a disposition to leave its food, voids its excrement, and diminishes in bulk, becoming at the same time semitransparent. Twigs of broom or green oak are now laid on the wicker frames, and the worms are placed more closely together. The spinning process now commences. The worm throws its head about in various directions and spins the floss or outer net work of its cocoon, and then winds the silk thread round its body as regularly as a spinner builds the thread upon the cope. The silken substance is a glutinous liquid matter in the body of the animal, which hardens by coming into contact with the air, and this glutinous property causes the two filaments issuing from the orifices above mentioned, to adhere and form one continuous thread. The spinning process is finished in the course of from three to four days, after which the cocoons are collected together, the finest being selected for seed and the rest set apart for unwinding.

The animal remains in its silken tomb for about twenty days; it then exudes a lubricating liquid to facilitate its freement, and by knocking its head against the cocoon it extricates itself in the form of a butterfly. The butterflies are laid upon a soft piece of cloth, where they copulate, and speedily terminate their existence.

The number of eggs produced by the female moth varies from 200 to 500, and about 200 cocoons will yield one ounce of seed. Six full grown worms will on an average weigh one ounce, which will give an idea of the wonderful increase of weight that the worm acquires during its progress from hatching. One of the best writers on the subject, states that the relative lengths at the different stages are,

At hatching,	1
At the end of the 1 stage,	4
—— 2 —	6
—— 3 —	12
—— 4 —	20
—— 5 —	40

According to Dr Ure, " fifteer parts by weight of mulberry leaves furnish one part of cocoons, and one hundred parts of cocoons furnish eight parts of reeled silk. Under favourable circumstances, one ounce of seed eggs will produce eighty pounds of cocoons, or even more. One pound of cocoons is required to yield one ounce of eggs, the silk of a cocoon weighs two and a half grains, and affords a length of thread equal to from 750 to 1,160 feet." The great quantity of food they consume is surprising. The authority last quoted, states that the worm increases in weight so much as 30,000 times the weight of the egg, and Bonafons renders this not improbable from his observations on the quantity of mulberry leaves consumed by the animal.

	lbs.	oz.
In the 1 age they consume	7	
— 2 ——	21	
— 3 ——	69	12
— 4 ——	210	
— 5 ——	1281	
In all,	1588	12

The mulberry is the natural food of the silk worm, and therefore it can only be reared in those climates where such trees grow. Attempts have been made to substitute other vegetables, such as lettuce leaves, but the results have not been such as to induce the practice to any extent. Attempts have likewise been made to obtain a substitute for silk from other animals, as the spider and the pinna, but these have never been made available in a commercial point of view, and specimens are only to be found in the cabinets of the curious.

The art of making the filamentous substance of the cocoon available for the use of man, seems to have originated with the Chinese, and to have been discovered at a very early period. The most ancient of their records describe the queen as surrounded by her female attendants all engaged in the silk manufacture, and, according to the written documents of this nation, the art seems to have been known among this singularly ingenious people 2700 B. C. Until the time of the emperor Justinian, the silk worm was cultivated only in China, but the raw material was purchased and manufactured by the inhabitants of Persia, Tyre, &c. for a long time before. Aristotle relates that the inhabitants of the island of Kos were in the habit of unweaving the heavy fabrics of the east, and of again spinning and weaving them into fabrics of a more variegated texture; and this, which is said to be the invention of Pamphela, appears to be the origin of silk gauze. Before the reign of Augustus, the use of silk was little known in Europe.

About the beginning of the sixteenth century the silk trade of Constantinople was greatly depressed in consequence of the impolitic interference of the emperor Justinian. The culture of the silk worm was at this period unknown in Europe; but was introduced in rather a singular manner. Two Persian monks had gone as missionaries to the Christian churches at this time established in India; these monks devoted great attention to the culture of the silk worm, and perceiving that this species of industry would be highly advantageous to other countries, they managed to carry away a quantity of the eggs packed in a hollow cane, which they conveyed to Constantinople. This occurred in the year 552. The monks superintended the hatching of the eggs, and thus originated all the silk worms that have ever been nurtured in Europe. Justinian took the manufacture entirely into his own hands, and all the silk rearers and weavers were compelled to work under the superintendence of his treasurer. Justinian was strongly imbued with a love of that restrictive policy as regards commerce and manufacture, for which emperors and kings have been ever remarkable. He prevented the importation of eastern silk, and raised the price of the home manufacture to eight, and in cases of dyed goods to thirty times the price of the silks of the east. This produced, if not its desired at least its necessary result, i. e. the cultivation of the silk worm in a neighbouring country. Silk was soon manufactured in Greece and particularly in Peloponnesus. The merchants of Venice formed the channel through which the silk produce of the Greeks was transferred to the west of Europe. The silk manufacture continued in this state for six centuries; but in 1146, Roger I. king of Sicily, in his conquest of Greece, took many of the people engaged in this species of industry, whom he compelled to prosecute their avocations in his own dominions, at Palermo. A knowledge of the management of silk soon spread through Italy, and ultimately reached Spain, from whence it was, in the reign of Francis I., introduced to France. Yet while the silk manufacture was thus gradually moving to the west, China, which had been its birth place, did not remain inactive. The celebrated traveller, Marco Polo, informs us that towards the close of the thirteenth century there were not fewer than 1000 carriages and pack-horses, laden with silk, that came in daily to Cambalu, the royal city of the Chinese empire.

Bologna was the only Italian city, before the commencement of the sixteenth century, in which the throwing or twining of silk was performed by machinery. Antwerp was for a long period celebrated for its trade in silken goods, but, having been taken by the duke of Parma in 1585. a check was for a time put upon its commerce, and also that of the Low Countries. Those engaged in the silk and other manufactures in Flanders and Brabant, sought and obtained refuge in England, where they found a home, and laid the foundation of many of those branches of industry that have contributed to make this kingdom the first in the world.

Partly from superiority, and partly from fashion, foreign silks were for a long time preferred to those of home manufacture; and for a considerable period, the silk trade made slow progress in England. Still the manufacture did progress, and received no small impetus from the invention of the stocking frame, insomuch that the silk stockings of English manufacture were preferred above all others, and it was customary for the manufacturers of Naples to say, by way of recommending their silk stockings, that they were "right English." It is worthy of remark that we are indebted to clergymen for the invention both of the stocking frame and the power loom; but, it is matter of regret that the Rev. William Lea, of St John's college, Cambridge, the inventor of the stocking frame, not finding sufficient patronage at home, was obliged to apply to Henry IV. of France, who established him at Rouen. The monarch was soon after murdered, the ingenious clergyman was deprived of his patron, and died, neglected and destitute, in the capital of France. Henry, with a view to extend the manufacture, enlisted by title in the ranks of the nobility every person in his dominions who should successfully pursue it for twelve years, and by every means in his power endeavoured to extend the rearing of the silk worm throughout the whole of his kingdom; but experience showed that the silk worm could not be bred with advantage beyond the line of the Loire. James I. of England seeing, as he himself says, that the French king "had gained to himself honour" by his encouragement of the silk trade, tried by sundry means to establish the culture of the mulberry tree in this country; but these, and all other attempts to rear the silk worm in England, have been rendered abortive by the coldness of the climate. Attempts were made by the same monarch to introduce the culture of the silk worm into America, but these, and subsequent endeavours, seem not to have been crowned with much success. In the East Indian colonies, the rearing of the silk worm has been for a long time carried on extensively and with great advantage; and in the Company's possessions in Bengal, there are not fewer than 300,000 persons engaged in the silk manufacture. The culture of the mulberry tree was first introduced into Russia by Peter the Great, and the manufacture of silk afterwards encouraged by Catherine. Silk continues to be a branch of Russian industry. The culture of the silk worm has been introduced into some parts of Germany, Sweden, Malta, the Mauritius, St Helena, &c., with various success. From the high price of labour in Great Britain, silk cannot be reared here so as to be brought to market without loss, and the immense consumpt of this kingdom is supplied by importation. The average annual consumpt of raw silk in England alone is four millions of pounds, and for the production of this quantity fourteen thousand millions of animated insects yearly live and die.

A considerable stimulus was given to the English silk manufacture by the revocation of the edict of Nantes, in 1685. Louis XIV. drove, by that disgraceful measure, thousands of his most industrious subjects to seek an asylum in foreign countries; of whom it is supposed about 50,000 came to England. Such of these refugees as had been engaged in the silk manufacture, established themselves in Spitalfields. Foreign silks were at this time freely admitted; and it appears that from £600,000 to £700,000 worth were annually imported in the period from 1685 to 1692, being the very period during which the British silk manufacture made the most rapid advances. In 1692, the refugees, who seem to have been quite as conversant with the arts of monopoly as with those either of spinning or weaving, obtained a patent, giving them an exclusive right to manufacture lustrings and *à-la-modes.* —the silks then in greatest demand, and in 1697 an act was passed prohibiting the importation of all French and other European silk goods; and, in 1701, the prohibition was extended to the silk goods of India and China.

In 1719, a patent was granted to Sir Thomas Lombe and his brother for the exclusive property of the famous silk mill erected by them at Derby, for throwing silk, from models they had clandestinely obtained in Italy. At the expiration of the patent, parliament refused the prayer of a petition of Sir Thomas Lombe for its renewal, but granted him £14,000 in consideration of the services he had rendered the country, in erecting a machine which, it was supposed, would very soon enable us to dispense wholly with the supplies of thrown silk we had previously been in the habit of importing from Italy: but instead of being of any advantage, it is most certainly true, that the establishment of throwing mills in England has proved one of the most formidable obstacles to the extension of the manufacture among us. Such mills could not have been constructed unless oppressive duties had been laid on thrown or organzine silk; and the circumstance of their having been erected, and the large amount of capital vested in them, was successfully urged, for more than a century, as a conclusive reason for continuing the high duties! Of the multitude of acts that have been passed in reference to this manufacture, from 1697 to 1824, it would be exceedingly difficult to point out one that is bottomed on any thing like a sound principle, or that was productive of any but mischievous consequences. In 1763, attempts were made to check the prevalence of smuggling · and the silk mercers of the metropolis, to show their anxiety to forward the scheme, are said to have recalled their orders for foreign goods; but it appears, from a report of a committee of the privy council, appointed in 1766, to inquire into the subject, that smuggling was then carried on to a greater extent than ever, and that 7072 looms were out of employment. The same committee reported, that though the French were decidedly superior to us in some branches of the trade, we were quite equal and even superior to them in others; but instead of proposing, consistently with their report, to admit French silks on a reasonable duty,—a measure which would have proved very advantageous to those branches of the manufacture in which we were superior, or nearly equal to the French, without doing any material injury to the others, which were already in the most depressed condition,—they recommended the continuance of the old system; substituting absolute prohibitions in the place of the prohibitory duties that formerly existed! Whatever immediate advantages the manufacturers might have reaped from this measure, the ultimate tendency of which could not fail of being most injurious, were effectually countervailed by the turbulent proceedings of the workmen, who succeeded, in 1773, in obtaining from the legislature an act which, by itself, was quite sufficient to have destroyed even a prosperous trade. This, which has been commonly called the Spitalfields Act, entitled the weavers of Middlesex to demand a fixed price for their labour, which should be settled by the magistrates: and while both masters and men were restricted from giving or receiving more or less than the fixed price, the manufacturers were liable in heavy penalties if they employed weavers out of the district! The monopoly which the manufacturers had hitherto enjoyed, though incomplete, had had sufficient influence to render inventions and discoveries of comparatively rare occurrence in the silk trade; but the Spitalfields Act extinguished every germ of improvement. Parliament, in its wisdom, having seen fit to enact that a manufacturer should be obliged to pay as much for work done by the best machinery as if it were done by hand, it would have been folly to have thought of attempting any thing new! It is not, however, to be denied that Macclesfield, Manchester, Norwich, Paisley, &c., are under obligations to this act. Had it extended to the whole kingdom it would have totally extirpated the manufacture; but being confined to Middlesex, it gradually drove the most valuable branches from Spitalfields to places where the rate of wages was determined by the competition of the parties, on the principle of mutual interest and compromised advantage. After having done incalculable mischief, the act was repealed in 1824. Had it continued down to the present day, it would not have left employment in the metropolis for a single silk weaver. The monopoly enjoyed by the manufacturers, and the Spitalfields Act, effectually put a stop to all improvement; so that the manufacture continued stationary in England, while on the Continent it was rapidly advancing. The principal manufacturers in and about London subscribed, in 1824, a petition to the House of Commons, in which they stated that "this important manufacture, though recently considerably extended, is still depressed below its natural level, by laws which prevent it from attaining that degree of prosperity which, under more favourable circumstances, it would acquire." Fortified by this authority, by the experience of 130 years, during which the prohibitive system had been allowed to paralyse the energies of the manufacturers, and by the sanction of parliamentary committees, Mr Huskisson moved, on the 8th of March, 1824, that the prohibition of foreign silks should cease on the 5th of July, 1826, and that they should then be admitted for importation on payment of a duty of 30 per cent. *ad valorem*. The effect of the opening of the trade has been such as to justify all the anticipations which the advocates of the measure had formed of its success. The silk manufacture has made a more rapid progress during the last twelve years, or since the abolition of the prohibitive system in 1826, than it did during the preceding century. So unprecedented has been its advance, that "the once existing disparity in quality between goods of French and English make has, with some very unimportant exceptions, not merely disappeared, but actually ranged itself on the side of the British artisan. Some of our readers will, probably, be not a little surprised to learn, that the real or declared value of the silk goods of British manufacture exported to France, in 1832, amounted to £75,187.

Most of the machines and processes known on the continent have been introduced amongst us, and many of them have been materially improved. Nor after what has taken place, can the least doubt remain in the mind of any one, that had the same freedom been given to the silk manufacture sixty years ago, that was given to it in 1826, it would now have ranked among the most important and valuable businesses in the kingdom, and would have had nothing whatever to fear from the admission of foreign silks, free of duty. It is the opinion of the most intelligent persons in the trade, that the existing duty of 30 per cent. on foreign silks ought to be reduced to twenty per cent.; and that it should be further reduced one per cent. per annum till it be brought to twelve or fifteen per cent., at which it might be allowed to continue stationary, not as a protecting duty, but as a duty imposed for the sake of revenue. A measure of this sort, by increasing *fair* competition, would continue the impulse already given to the manufacture, and excite to new efforts of invention. Under such a system, we are well assured that, in a very few years, perhaps not more than five or six, our superiority over France in some important departments of the silk manufacture would be little less decided than in that of cotton.

Account, illustrative of the progress of the Silk Manufacture, showing the quantities of Raw, Waste, and Thrown Silk imported at different periods.—(Report of 1832 on Silk Trade, p. 10, and Parl Paper, No. 9, Sess. 1834,)

Average Imports.	Raw.	Waste.	Thrown.	Total.
	lbs.	lbs.	lbs.	lbs.
1765, 766, 1767, being the commencement of the absolute prohibition, - -	352,000	—	363,000	715,000
1785, 1786, 1787, - - - - - - - - -	554,000	—	337,000	891,000
1801 to 1812, - - - - - - - - - -	760,000	—	350,000	1,110,000
1815, 1816, 1817, being 50 years after prohibition, and the first three years of peace, - - - - - - - - - - -	1,095,000	27,000	293,000	1,415,000
1821, 1822, 1823, being the years immediately previous to the abolition of the prohibition, - - - - - - - - - -	1,970,000	74,000	355,000	2,399,000
1831, 1832, 1833, being three years previous to date of Report, - - - -	3,137,271	688,369	345,270	4,170,910

Manufacture.—The first operation in the silk manufacture is the unwinding of the cocoons, the thread being coiled upon a reel. Before the cocoons are reeled, the outward covering or floss, spoken of in our description of the silk worm, has to be disengaged, by opening the floss at one end, and causing the cocoon to protrude. Though the vender of cocoons is bound by law to perform this, yet it is seldom done perfectly, and the consequent loss to the purchaser is, on an average, about ten per cent. Before reeling, the cocoons have likewise to be assorted, as different classes require different treatment.

The reeling of silk, as practised in Piedmont, where silks of the best description are manufactured, is performed in the following manner: the cocoons are placed in an oblong copper boiler, a foot and a half in length, and six inches deep; the boiler is supported upon a brick stove, and the water in it heated by charcoal. The boiler is divided into transverse portions, into each of which, generally, five cocoons are placed. The ends of the filaments are led from the cocoons in the boiler, and guided by passing on hooked wires, so as to be separated from each other, and also made to cross, so that by rubbing on one another, they may be cleaned. The threads then pass through a guide, which moves alternating transversely, from which they pass upon the revolving reel. The reel consists of four arms, which support rails parallel to the axis, and these rails are placed at such a distance from each other, that one turn of the reel winds off one yard in length of the filament. One of the arms of the reel is furnished with a joint, so that it may, as occasion requires, fold down, and, by slackening the coil, allow it to be slipped easily off the reel. Motion is given to the machine by a crank on the axis of the reel, or by a revolving pully connected to it and the traverse by bands and wheel work. The water in the copper is kept nearly at the boiling point, to soften the gummy matter of the cocoons. Four or more threads being led from the copper together, and uniting by the gum, form one thread. When any one of the filaments breaks, a union must be made by laying on another, the gum being sufficient to cause the adhesion without tying. Great care is required in reeling, however simple the process may appear. The filament grows smaller as the cocoon is unwound, so much so that when a cocoon is half unwound, the filament is only half the thickness of what it was at the beginning. A woman, with the assistance of a girl, can, on an average, wind off one pound of silk per day, when the silk is of the finest description; but if of the coarsest, six or eight times that quantity. The cocoons which have been pierced by the worm, are treated in a different manner. After being boiled and placed in a basin, they are wound upon a distaff; the silk thus obtained is called *fiuret*, and from its superior quality sells at a much higher price than that procured by the former process. By the latter method, a good spinner will not produce more than one ounce of thread in a day. The factory in which the reeling is carried on is called a filature, and the silk thread produced in the manner we have described is called *raw silk*.

Raw silk is not adapted for the purpose of the fabrication of cloth; and it must undergo the operation of throwing ere it passes to the hand of the weaver. By the throwing operation, the silk is produced in either of the three forms of *singles*, *tram*, or *organzine*.

In the throwing mill the first operation is the winding of the silk upon bobbins, which is effected by a winding engine, similar in its construction to those employed in the cotton manufacture for winding off the hank. The bobbins are made to wind off the silk from the beginning to the end of the process at a uniform speed, by being made to rest upon cylinders of metal, revolving uniformly by the geering of the machine, the rollers being turned by the friction arising from their weight pressing upon the cylinders.

This being done, and the silk assorted as to its fineness, it is carried to the throwing mill. This machine will be easily understood by a reference to our description of the bobbin and fly frame, under the article *Cotton Manufacture*. But in the throwing mill the process is somewhat different from the cotton spinning machine. On consulting the article above referred to, it will be seen that the thread or rove (according as the apparatus we are speaking of is used as a fly frame or throstle), is wound upon the bobbin; but in the silk throwing machine the process is reversed, the thread being unwound from the bobbin, twisted by the revolution of the flyer, and wound upon a reel. In the passage of the silk threads from the bobbins to the reel there is no drawing, or in other words, there are no rollers between which the threads pass, so as to be drawn out, as in the water frame of Sir Richard Arkwright. The silk is only twisted. The twist of the silk thread may be altered according to circumstances, by varying the relative velocities of the reel and flyer. The silk intended for organzine receives the greatest number of twists in the inch. The silk thus prepared is called *singles*.

The next operation is to bring two or more of these threads twisted upon one bobbin. This is done in a throwing machine, like that we have spoken of above, and the silk thus spun is called *tram* silk, commonly used for the woof of the silk weaver. In its formation, the twists have been given all in one direction, and it is accordingly of the nature of twine, or the strands of which a rope is composed.

Two or more of these threads of tram silk twisted in the throwing mill together, constitutes organzine, a species of silk thread employed for warps. There is, however, this distinction between organzine and tram silk, that whereas the threads of the latter are all twisted in one direction, forming individual strands, like twine, the threads of the former are twisted in an opposite direction, like rope, that is, if in a thread of organzine each strand be twisted to the right, then the collected threads are spun or twisted to the left, as in the formation of a rope or cable.

In the state to which we have now brought the silk, it is said to be *hard*, in consequence of the gum, which, however, is separated by boiling. The boiling process requires great care, and in consequence of ignorance or negligence often destroys the silk. It is much more safe to separate the gum by steam. The hanks of raw silk are not boiled but soaked in a tub of tepid soap water.

The throwing machine has been greatly improved both as to accuracy and produce, by assimilating it to the cotton throstle. The speed of the spindles of the machines in this country, till very lately, and still on the continent, was not above 1200 revolutions in the minute; but now, from the exertions of Messrs Fairbairn, Lillie and Ritson, the speed has been raised to 4500.

Another form of process in the manufacture of silk thread has been lately made the subject of letters patent, and brought into successful operation. The use of this process, or combination of processes, is to spin into thread the waste of the throwing mill.

The waste from the throwing mill is made to pass through an endless heckle of a construction that will be understood from what follows. The ends of the silk waste are placed between the edges of two boards, which are then firmly screwed together, so that the silk hangs out like a fleece; a great many of these pairs of boards are placed firmly in an oblong frame. Over this frame, there is an endless web moving, which passes round rollers at each end. This web carries upon it a series of heckles, all moving with it. When these heckles pass along the under side, their teeth act upon the silk in the frame below, and clear it. When the heckling is finished in a coarse machine, the boards with the silk are placed in a finer heckle frame, and the process is thus continued as far as is found necessary.

The silk thus heckled is now carried to a cutting machine, where it is laid regularly upon an endless web moving at a certain rate along the side of the cutting machine. At the end, there are a series of revolving knives, which cut the silken fibres into lengths of an inch or more.

In this state it is opened up, by being passed through a blowing engine, similar to that described in our article *Cotton Manufacture*. After being blown, it is boiled in a lea of soap water for several hours, in order to free it of the gum.

After drying it passes through a carding machine, like that represented in our plates of linen manufacture. Like that machine, it is chiefly distinguished from the cotton carding engine, by having several doffers revolving on the surface of the large cylinder. After the carding, the drawing and roving processes are performed by machinery exactly the same as that used for cotton.

The preparation being made, the spinning is effected by the organ jenny, or rather mule, a minute account of which has been already given under the article cotton. The *singles* are thus prepared.

The doubling is effected by the common throstle.

SILLI; Greek poems written in hexameters, belonging to the class of satire, in which the philosophers, and their doctrines in particular, were ridiculed. The silli were often parodies on other poems. Tymon and Didymus are famous writers of *silli*.

SILO; a Spanish word, signifying an excavation about fourteen feet deep, for preserving grain. It is best made in marly ground, not too dry. Over the bottom a vaulted dome is built, rising eight and a half feet, and surrounding the tube through which the corn is poured in. The walls of the excavation are lined with straw. Three hundred bushels of wheat, preserved some time in a *silo*, were found, on careful examination, to have increased in measure one bushel, while the weight of the whole was diminished two and a half per cent. The expense of preserving grain in granaries is generally estimated at ten per cent.: in the larger *silos*, however, it is only one per cent., if the grain is left shut up for two years. On the farm of M. Ternaux, at St Ouen, near Paris, it was found that the grain put in his *silos*, in 1819, was sound and fresh in 1824. In Hungary, the same method of preserving grain is common.

SILOA, OR SILOAM; a fountain on the east side of Jerusalem, between the city and the brook Kedron, or Cedron. St John speaks of the pool of Siloam (John ix. 7). The tower of Siloam, mentioned in Luke xiii. 4, is thought to have been near this fountain.

SILONG; a city of China, of the second rank in Quangsi.

SILVANUS; an Italian rural deity, usually represented with a sickle in his right hand and a bough in his left, and sometimes with the horns and feet of a goat. He is described as the protector of herds and trees from wolves and lightning, the god of agriculture, or the defender of boundaries; and offerings of various kinds were made to him. He is often confounded with the Fauns, Pans and Satyrs. See the articles.

SILVER; a metal which appears to have been known almost as early as gold, and, without doubt, for the same reason, because it occurs very frequently in a state of purity in the earth, and requires but an ordinary heat for its fusion. Mention is made of silver in the book of Job, which is considered the oldest of the books contained in the Old Testament. The ores of silver are somewhat numerous; and we shall defer our account of them to the conclusion of the present article, commencing with the chemical history of this metal. Pure silver is of a fine white colour, with a shade of yellow, without either taste or smell, and, in brilliancy, is inferior to none of the metallic bodies, if we except polished steel. It is softer than copper, but harder than gold. When melted, its specific gravity is 10·47; when hammered, 10·510. It is next in malleability to gold, having been beaten out into leaves only $\frac{1}{100000}$th of an inch in thickness. Its ductility is no less remarkable. It may be drawn out into a wire much finer than a human hair; so fine, indeed, that a single grain of silver may be extended about 400 feet in length. Its tenacity is such, that a wire of silver 0·078 of an inch in diameter is capable of supporting a weight of 187·13 pounds avoirdupois without breaking. Silver melts when heated completely red-hot; and, while in the melted state, its brilliancy is greatly augmented. If the heat be increased after the silver is melted, the liquid metal boils, and may be volatilized; but a very strong and long continued heat is necessary. Gasto Claveas kept an ounce of silver melted in a glass-house furnace for two months, and found, by weighing it, that it had sustained a loss of one twelfth of its weight. When heated upon charcoal under the flame of the compound blow-pipe, however, the silver is volatilized with rapidity, passing off in a visible smoke. When cooled slowly, its surface exhibits the appearance of crystals; and, if the liquid part of the metal be poured out as soon as the surface congeals, pretty large crystals of silver may be obtained. Silver is not oxidized by exposure to the air; it gradually, indeed, loses its lustre, and becomes tarnished; but this is owing to a different cause. Neither is it altered by being kept under water. But, if it be kept for a long time, melted in an open vessel, it gradually attracts oxygen from the atmosphere, and is converted into an oxide. When silver is dissolved in nitric acid, and an alkali dropped into the solution, a brown-coloured precipitate falls in flocks, which, when washed and dried, constitutes the *oxide of silver*. Its colour becomes a dark brown when dried. Its specific gravity is 7·14. When exposed to the direct rays of the sun, it gives out oxygen gas, and is converted into a black powder, the nature of which has not been examined. The oxide of silver is a compound of 93·1 silver and 6·8 oxygen. When oxide of silver is dissolved in ammonia, and the solution left exposed to the air, it is soon covered with a brilliant pellicle, which is a *suboxide of silver*. A *superoxide of silver* appears to be formed, when a plantina wire from the positive extremity of a galvanic battery is plunged into a weak solution of nitrate of silver, the compound in question accumulating in iron-black octahedrons upon the wire. Silver does not burn in chlorine gas, even when heated; but it gradually absorbs the gas, and is converted into the well-known compound formerly called *horn silver*, and afterwards *muriate of silver*, though now with more propriety denominated *chloride of silver*. This chloride, however, is more easily obtained by dissolving silver in nitric acid, and mixing the solution with a solution of common salt. A copious curdy precipitate falls. When this precipitate is washed and dried, it constitutes pure chloride of silver. Its specific gravity is 5·129. It is one of the most insoluble substances known, requiring no less than 3072 parts of water for its solution. When exposed to the air, it changes from white to a purple or blackish colour. It melts at 500° Fahr., and assumes, on cooling, the form of a gray-coloured, semitransparent mass, having some resemblance to horn, and for that reason called *luna cornea*. A strong heat sublimes it. When heated strongly in an earthen crucible, it passes through altogether, and is lost in the fire; but when mixed with about four times its weight of fixed alkali formed into a ball, with a little water, and melted rapidly in a crucible well lined with alkali, the silver is reduced, and obtained in a state of purity. *Chloride of silver* is composed of silver 13·75, and chlorine 4·50. A *bromide* and an *iodide of silver* may be formed simply by adding in the one case, a solution of a hydrobromate to one of nitrate of silver, and in the other, a solution of a hydrodate. If one ounce of silver, one ounce of phosphoric glass, and two drachms of charcoal, be mixed together, and heated in a crucible, *phosphuret of silver* is formed. It is of a white colour, and crystalline in its texture. It is composed of four parts of silver and one of phosphorus. Heat decomposes it by separating the phosphorus. When thin plates of silver and sulphur are laid alternately above each other in a crucible, they melt readily in a low red heat, and form *sulphuret of silver*. Its colour is black, and it crystallizes in small needles. It is capable of being cut with a knife, and is more easily fused than silver. It is well known that when silver is long exposed to the air, especially in frequented places, as churches, theatres, &c., it acquires a covering of a violet colour, which deprives it of its lustre and malleability: this coating is sulphuret of silver. Selenium appears to enter into combination with silver in two different proportions, forming *seleniets*. Arsenic forms an alloy with silver in the proportion of sixteen of the former to one hundred of the latter; it is steel-gray, brittle, and fine granular. Silver may be alloyed with antimony by fusion. Silver and iron unite readily: the alloy has the colour of silver, but it is harder, very ductile, and attracted by the magnet. When 500 parts of good Indian steel are fused along with one part of silver, the compound is greatly improved for the purposes of cutting instruments. Melted lead dissolves a great quantity of silver at a slightly red heat; the alloy is brittle and lead-coloured. Silver is easily alloyed with copper by fusion: the compound is harder, and more sonorous than silver, and retains its white colour, even when the proportion of copper exceeds one half: the hardness is at its maximum when the copper amounts to one fifth of the silver. The alloy of silver and tin is very brittle and hard. That of silver and mercury is formed by throwing pieces of red hot silver into mercury heated till it begins to smoke: it forms dendritical crystals, which contain eight parts of mercury, and one of silver. The most important combination among those of the acids and silver (the *nitrate of silver*) has been alluded to above, in the description of the oxide of silver. Nitric acid is the proper solvent of this metal, from which solution the other salts of silver are obtained: it dissolves more than half its weight of the metal, the solution being attended with effervescence: if the silver and the acid are pure, the solution is limpid and colourless, exceedingly heavy and caustic: it stains the skin, and all animal substances, of an indelible black colour; hence it is often used to dye hair, &c.; when evaporated till a pellicle begins to form on its surface, it deposits, on cooling, transparent crystals of nitrate of silver, in the form of six-sided, four-sided, or three-sided, thin plates; but, by slow evaporation, the salt may be obtained in short, right rhombic prisms of 129° 31′: its taste is intensely bitter and metallic, and it is usually employed as a corrosive substance, under the name of *lunar caustic;* it is soluble in its own weight of cold, and in half its weight of hot, water. From the solution, the silver is thrown down in a metallic state by a great number of bodies; for example, hydrogen, sulphurous acid, sulphate of iron, proto-chloride of tin, carbon, phosphorus, volatile oils, and many of the metals. The specific gravity of lunar caustic is 3·52. When heated, it readily melts, swells up, and then remains liquid: in this state it is cast into small cylindrical moulds by apothecaries, to be employed by surgeons for the purpose of opening ulcers and destroying fungous excrescences: as an escharotic, its action is powerful, and it is greatly preferred to caustic potash also, in consequence of its not be liable to deliquesce and spread. Both the crystals and the fused salt are anhydrous, consisting of 118 parts oxide of silver, and 54 nitric acid: it detonates, when heated with combustible bodies, and with phosphorus it detonates on percussion. *Sulphate of silver* is obtained with ease by mingling together solutions of nitrate of silver and sulphate of soda: it falls in the state of a white powder, which may be dissolved in water, and crystalized: the crystals are white and brilliant, and have the form of very fine prisms: it has the peculiarly disagreeable taste of the nitrate; is anhydrous, and composed of sulphuric acid 5, and oxide of silver 14·75. *Sulphite of silver* is obtained by mixing the solutions of sulphite of ammonia and nitrate of silver. It assumes the form of small, shining, white grains: when exposed to the light, it assumes a brown colour. *Phosphate of silver* is insoluble in water, and is hence precipitated when a solution of phosphate of soda is added to a solution of nitrate of silver. The *salts of silver* are decomposed by the alkalies and the earths. Prussiate of potash, when dropped into a solution of a salt of silver, occasions a white precipitate; hydro-sulphuret of potash produces a black precipitate; and an infusion of nutgalls gives a yellowish brown precipitate. A fulminating preparation of silver, similar to that of gold, but more energetic, is prepared by dissolving silver in nitrous acid, diluted with three parts of water: to the solution lime-water is added as long as any precipitation is occasioned; the precipitate is washed and dried; it is then allowed to remain for several hours in liquid ammonia, when it becomes a black powder; the liquor is decanted, and it is allowed to dry in the air; when completely dry, such is its tendency to explosion, that it cannot be touched, the slightest agitation causing it to detonate; and so violent is the detonation, that the experiment cannot be made with safety on more than a grain. The theory of its detonation is considered as similar to that of fulminating gold; it probably consists of oxide of silver and ammonia, the elements being united by affinities so nicely balanced, that the slightest external force subverts them, and causes new combinations: the oxygen of the oxide unites with the hydrogen of the ammonia, and forms watery vapour; the nitrogen must assume the elastic form, and the augmentation of elasticity in these products, by the caloric suddenly extricated, may be the cause of the detonation. A fulminating silver totally different from that above described, is frequently sold as an object of amusement: it is enclosed between the folds of a card cut in two lengthways, the powder being placed at one end, and the other being notched, that it may be distinguished; if it be taken by the notched end, and the other be held over the flame of a candle, it soon detonates with a sharp sound and violent flame; the card is torn and changed brown, and the part in contact with the composition is covered with a slight metallic coating of a grayish-white colour. This compound is formed in the following manner: Into a pint tumbler, or other glass vessel, is introduced 100 grains of dry nitrate of silver, over which is poured one ounce of alcohol, and the same quantity of smoking nitric acid. The mixture of the alcohol and nitric acid occasions much heat and effervescence in the liquid: if this is so violent as to overflow the vessel, cold alcohol is added in small portions to abate the ebullition: in a few minutes the liquor becomes turbid, and a very heavy, white, crystalline powder falls down, which is separated by the filter, and thoroughly washed with tepid water: before being fully dry, it should be separated into parcels of ten or twenty grains, which portions, when thoroughly dried at a distance from the fire, present the following properties: The substance is white and crystalline; the light changes its colour to a dark brown; when heated, it explodes with great violence. It explodes also by percussion and friction, and the contact of sulphuric acid. When put into dry chlorine gas, it explodes with a loud report. So powerful is this powder in its explosion, that no person but chemists should venture upon its manufacture, or presume to experiment with it. The most painful accidents have repeatedly occurred with it, in the hands of the inexperienced and the careless. It is composed of oxide of silver 14·75, and of a peculiar acid, called the *fulminic*, 5·25. For some account of fulminic acid, see *Prussic Acid.*

Silver Ores.—There are five important ores of silver, viz.—1. *Native silver;* 2. *vitreous silver* (or silver glance); 3. *black silver;* 4. *red silver;* 5. *horn silver.*

Native silver is occasionally found crystallized in the following shapes, viz.—the cube, octahedron, tetrahedron, rhombic dodecahedron, trapezohedron, and six-sided tables. The cube is the primitive form; but it more often occurs in dentiform, filiform, and capillary shapes; also reticulated, arborescent, and in plates; likewise in plates, formed in fissures, and in superficial coatings; cleavage none; fracture hackly; lustre metallic; colour silver-white, more or less subject to tarnish; streak shining; ductile; hardness between gypsum and calcareous spar; specific gravity, 10·47. Native silver has been distinguished into *common* and *auriferous* native silver· the former consists of silver alloyed with a small proportion of antimony, arsenic, iron, &c.; the latter frequently contains fifty per cent. of gold. Native silver occurs principally in veins, traversing gneiss, clay-slate, and other primitive and transition rocks. There are but few countries in which it is found in any considerable quantity. Among these are the mining districts of Saxony and Bohemia, also Norway and Siberia, but particularly Mexico and Peru.

Vitreous silver presents itself crystallized in cubes, octahedrons, and rhombic dodecahedrons. Its primitive form is the cube. It also occurs in reticulated, arborescent, dentiform, and capillary shapes; also massive and impalpable; fracture imperfect, and small conchoidal, uneven; lustre metallic, subject to tarnish; colour blackish lead-gray; streak shining; malleable; hardness about that of gypsum; specific gravity, 7·19. It consists of silver 85·0, sulphur 15·0. It is easily fusible before the blow-pipe, and intumesces; but it gives a globule of silver by a continuation of the blast. It has been hitherto found almost exclusively in veins, along with ores of lead, antimony, and zinc. It occurs in Saxony, Bohemia, Hungary, Mexico, and Peru. It is an important species for the extraction of silver.

Black silver has for its primitive form a right rhombic prism of 100° 0′. The crystals, however, are not often observed; but it is more frequently in granular masses; fracture imperfect conchoidal, uneven; lustre metallic; colour iron-black; streak unchanged; sectile; hardness about that of gypsum; specific gravity 6·2. It consists of

Silver,	65·50
Antimony	10·00
Iron,	5·00
Sulphur,	12·00
Copper and arsenic,	·50
	93·00

Before the blow-pipe, upon charcoal, it yields a dark-coloured, metallic globule, which may be reduced with saltpetre. It is found in silver veins along with other ores of silver. It occurs chiefly in Saxony, Bohemia, and Hungary, in Mexico and Peru. It is a valuable ore for the extraction of silver.

Red silver. The primitive form of this species is an obtuse rhomboid of 109° 28′. Its secondary forms are six-sided prisms, variously truncated and acuminated, and an equiangular double six-sided pyramid; cleavage parallel with the sides of the primitive form, pretty distinct; fracture conchoidal; lustre adamantine; colour iron-black to cochineal red; semi-transparent to opaque; sectile; hardness about that of gypsum; specific gravity 5·84. The crystals are very liable to occur twin-shaped. Red silver is often found massive, granular, and even impalpable. It consists of

Silver,	58·949
Antimony,	22·846
Sulphur,	16·609

It decrepitates before the blow-pipe upon charcoal, melts, and emits fumes of sulphur and antimony, after which it yields a globule of silver. Red silver is confined to a small number of localities, and occurs in veins along with other ores of silver, galena, and blende. It is found in the metalic veins near Freiberg, also at Marienberg, Annaberg, Schneeberg, and Johanngeorgenstadt in Saxony; likewise in Bohemia, Hungary, Dauphiny, and Norway; but is much more abundant in Mexico and Peru. It is a valuable ore for silver.

Horn silver has the cube for its primitive form, in which shape it frequently occurs, as also in acicular fibres; cleavage none; fracture more or less perfect conchoidal; lustre resinous, passing into adamantine; colour pearl-gray, passing into lavender-blue, and some shade of green; the colour becomes brown on being exposed to light; streak shining; translucent, sectile; hardness about that of talc; specific gravity 5·5. It occurs also in crusts and granular masses. It consists of silver 76·0, oxygen 7·6, and muriatic acid 16·4. It is fusible in the flame of a candle, and emits fumes of muriatic acid. Horn silver is most frequently found in the upper parts of veins in clay-slate, but occurs also in beds, generally along with other ores of silver, or with iron-ochre. It is not abundant in European countries, but occurs in large masses in Mexico and Peru. It is used for extracting silver.

Such are the ores of silver which are properly so called, and from which silver is chiefly extracted. Besides these, however, argentiferous sulphurets of lead and copper are sometimes smelted for the small proportion of this precious metal which they contain.

We have now to allude to the methods employed in obtaining the silver from its various ores. These are two in number, *smelting* and *amalgamation*. The former is founded on the great affinity of silver for lead, which, when fused with silver, acts as a solvent, and extracts it from its union with baser metals. The silver is afterwards separated from the lead by the well-known process of cupellation, which consists in exposing the alloy to a stream of atmospheric air, by which the lead is converted into an oxide or litharge, while the silver remains untouched. The latter method depends upon the property of mercury to dissolve silver without the aid of heat. The first is called the *dry*, the last, the *wet* way of treating silver ores. One or the other process is employed, according to the nature of the ores. The ores which are treated in the wet way are usually those which consist principally of argentiferous sulphuret of lead. The first thing to be done, by this method, is to pulverize and roast the ore in a furnace, to expel the sulphur. When the well or crucible is full of metal, it is tapped and run off. It is now ready for the process of refining, or cupellation. For this purpose, a reverberatory furnace is employed, the lower part of which is covered with wood ashes and clay, so as to form a cupel. On one side of the furnace there is a hole for the exit of the litharge; and on the opposite side is another for the admission of air to the surface of the metal, which is introduced through an aperture above, to which a cover is adapted. After the lead is melted and brought to a red heat, the blast of air is admitted, and the scoria, as it collects, is removed. When the litharge is formed, the heat is increased, and the quantity becomes greater, and is withdrawn through the opening in the furnace. At the same time, some lead is volatilized. Towards the end of the process, the litharge which comes off contains a small quantity of silver, and is therefore kept separate from the rest. After the whole of the litharge is removed, and the surface of the metal in the furnace becomes bright, a quantity of water is poured on it, to keep it from spirting, which it is apt to do when congealing. The metal thus obtained is subjected to a similar operation for about five hours, in a smaller furnace, and at a higher temperature, by which it is completely freed from the lead. With respect to the other method of reduction or separation—amalgamation—the following is an outline of the more important steps, of which it consists. The ores best adapted to this process are native silver and vitreous silver. The first operation that requires description is the selection of the ores to form a proper mixture, with reference to the quantity of silver and sulphur they contain. It has been observed that the amalgamation process succeeds best when the silver produce is about seventy-five ounces to the ton of ore; at the same time, regard being had to the quantity of sulphur present, which is ascertained from the quantity of sulphuret in the ore, previously learned by an assay in the crucible. The sulphur is got rid of, by adding to the mixture of raw ore ten per cent. of common salt, by which, during the furnace operation, the sulphur becomes acidified, and the acid thus formed, uniting with the base of the salt, forms sulphate of soda; whilst the muriatic acid, thus set free, combines with the silver in the ore, that was not in the metallic state, and forms muriate of silver. In this state, the ore is subjected to various mechanical operations, with riddles, mills, and sieves, until it is reduced to an impalpable powder. It is then submitted to the action of mercury. This operation is performed in barrels, which are arranged so as to revolve on their axes. The mixture or charge in each barrel consists of sifted calcined ore, mercury, metallic iron, and water, in certain proportions. The ore is composed of sulphate of soda, muriate of silver, and other metals and earthy matters. By the process of amalgamation, the barrels being made to revolve during a period of sixteen or eighteen hours, the muriate of silver becomes decomposed by the action of the iron on its acid; and the silver, thus reduced to the metallic state, combines with the mercury, forming what is termed *amalgam*, whilst the sulphate of soda, the muriate of iron, and other salts, become dissolved in the water. The silver combined with mercury is then filtered, by which the surplus metal is separated, and a compound remains in the sack, consisting of six parts of mercury and one of silver. This amalgam is subjected to the action of heat in a distilling furnace, by which the mercury is sublimated, and the silver remains. Silver is also sometimes separated from copper by the process of *eliquation*. The eliquation is effected by means of lead, which, possessing a greater affinity for silver than for copper, combines with the former, when brought into fusion with the alloy, and forms a new metallic compound. The argentiferous lead, thus obtained, is subjected to the usual processes of cupellation, and the coarse copper, from which the silver has been separated, is refined.

We shall now take notice of the mines of silver in different parts of the world, which furnish the silver of commerce. Those of Mexico and South America are incomparably more important than those of all the rest of the world. Mexico alone has above three thousand mines, or excavations for silver ores, which produced annually, during the last ten years of the seventeenth century, about £900,000. The mines of Guanaxuato yielded nearly one quarter of this amount, while the single mine of Valenciana, situated in the same district, has afforded, for years together, during the last thirty years, between two and four hundred thousand pounds. Nor are the ores of Mexico, for the most part, rich in silver; but the rich produce of that country has depended upon their abundance, and the facility with which they have been explored. In Peru, the annual produce of this metal was formerly as great as £250,000; the major part of which was furnished by the mines of Tasco, of Chota, and of Huantajaya. Chile affords £33,750 per annum. Buenos Ayres contains the celebrated mines of Potosi, discovered in 1545, and which have produced, according to the estimate of Humboldt, from the time of their discovery, the enormous amount of £258,750,000. These mines have diminished in value of late, though they still rank next to those of Guanaxuato. The celebrated mines of Konigsberg, in Norway, once so rich in native silver, have now become in a great measure exhausted. They are estimated to have produced above £4,500,000 since they were opened in 1623. The most important silver mines of Europe at present, are those of Saxony, Hungary, and the Hartz. The annual produce of Saxony is about £56,250; while those of the Hartz and of Hungary are each about the same. Within the last twenty years there has been a great increase in the produce of silver from the Russian mines. According to a communication from baron Humboldt, made since his return from Asia, to the editor of Poffendorf's *Annalen*, it appears that the annual produce of the mines of precious metals of Europe and Asiatic Russia amounts to 25,500 marcs of gold, and 292,000 marcs of silver; of which 76,500 of silver and 22,000 of gold are supplied from the Russian empire. The value of all this silver is about £529,425. The present annual produce of all the silver mines in the world is probably within £4,500,000.

SILVER FISH. See *Gold Fish.*

SILVER TREE (*leucadendron argenteum*); so called from the appearance of the leaves, which are lanceolate and silky. It is a large evergreen shrub, with handsome foliage, a native of the cape of Good Hope, together with the other species of the genus, and is a favourite in green-houses. It belongs to the *proteaceæ*, the most remarkable family of plants in the southern hemisphere, and one which contributes largely to give peculiar features to the vegetation of that portion of the globe. More than four hundred species of these plants are known, which are arranged in numerous genera. They are usually shrubs or small trees, but some attain large dimensions: the leaves are simple, entire, or serrated, in most species flat, but sometimes cylindrical or thread-shaped; the flowers are sometimes distinct, upon solitary footstalks, or in clusters, spikes, or corymbs, with *bracteæ* at the base; sometimes they are sessile, situated upon a common receptacle, surrounded with a many-leaved involucre, or are disposed in scaly cones; the colour is green, yellow, or red: in short, the remarkable differences in the habit, foliage, and flowers of these plants have given rise to the name of the order. The greater proportion of these plants inhabit New Holland, where they adorn large tracts of country; they are numerous, likewise, at the cape of Good Hope, but a few species only are found in the southern parts of South America. They are generally favourite green-house plants, and are not delicate with respect to cold; but their culture, in other respects, requires many precautions.

SILVERING. The application of silver leaf is made in the same way as that of gold, for which see *Gilding*. Copper may be silvered over, by rubbing it with the following powder:—Two drachms of tartar, the same quantity of common salt, and half a drachm of alum, are mixed with fifteen or twenty grains of silver, precipitated from nitric acid by copper. The surface of the copper becomes white when rubbed with this powder, which may afterwards be brushed off and polished with leather. A cheap silvering is prepared as follows:—Half an ounce of silver that has been precipitated from aquafortis by the addition of copper, common salt, and muriate of ammonia, of each two ounces, and one drachm of corrosive muriate of mercury, are triturated together, and made into a paste with water; with this, copper utensils of every kind, that have been previously boiled with tartar and alum, are rubbed, after which they are made red-hot, and then polished. The intention of this process appears to be little more than to apply the silver in a state of minute division to the clean surface of the copper, and afterwards to fix it there by fusion; and, accordingly, this silvering may be effected by using the argentine precipitate, here mentioned, with borax or mercury, and causing it to adhere by fusion. The dial-plates of clocks, the scales of barometers, and other similar articles, are silvered by rubbing upon them a mixture of muriate of silver, sea salt, and tartar, and afterwards carefully washing off the saline matter with water. In this operation, the silver is precipitated from the muriatic acid, which unites with part of the coppery surface. It is not durable, but may be improved by heating the article, and repeating the operation till the covering seems sufficiently thick. The silvering of pins is effected by boiling them with tin filings and tartar. Holton mirrors or globes are silvered by an amalgam, consisting of one part by weight of bismuth, half a part of lead, the same quantity of pure tin, and two parts of mercury. The solid metals are to be first mixed together by fusion, and the mercury added when the mixture is almost cold. A very gentle heat is sufficient to fuse this amalgam. In this state it is poured into a clean glass globe, intended to be silvered, by means of a paper funnel, which reaches to the bottom. At a certain temperature it will stick to the glass, which by a proper motion may thus be silvered completely, and the superfluous amalgam poured out. The appearance of these toys is varied by using glass of different colours, such as yellow, blue, or green. To silver looking-glasses, the following articles are necessary:—first, a square marble table, or smooth stone, well polished, and ground extremely true, with a frame round it, or a grove cut in its edges, to keep the superfluous mercury from running off; secondly, lead weights covered with cloth, to keep them from scratching the glass, from one pound weight to twelve pounds each, according to the size of the glass laid down; thirdly, rolls of tin-foil; fourthly, mercury. The artist then proceeds as follows:—the tin-foil is cut a little larger than the glass, and laid flat upon the stone, and with a straight piece of hard wood, about three inches long, stroked every way, that there may be no creases or wrinkles in it: a little mercury is then dropped upon it, and with a piece of cotton wool, or hare's foot, it is spread all over the foil; then, the marble slab being kept nearly level with the horizon, the mercury is poured all over the foil, which is covered with a fine paper; two weights are placed near its lower end, to keep the glass steady, while the artist draws the paper from between the silver-foil and the glass. This must be done with great care, so that no air-bubbles be left. After the paper is drawn out, weights are placed upon the glass to press out the superfluous mercury, and make the foil adhere. Another method is, to slide the glass over the foil without the assistance of paper. To make *shell silver*, silver leaf is ground with gum-water, or honey: the gum, or honey, is washed away, and the powder which remains is used with gum-water, or white of eggs, laid on with a hair pencil.

SILVESTRE DE SACY. See *Sacy.*

SIMEON STYLITES. See *Stylites.*

SIMOIS; a river of Troas, which rises in mount Ida, and falls into the Xanthus. It is celebrated by Homer, and most of the ancient poets, as many battles were fought in its neighbourhood during the Trojan war. Modern travellers call it a small rivulet, and some have even disputed its existence. See *Scamander.*

SIMON MAGUS, or the Magician; an impostor, mentioned in the Acts of the Apostles, a native of Samaria, who pretended to be an *æon* of an exalted nature, and called himself the supreme power of God. (See *Gnostics.*) Struck with astonishment at the miracles of the Apostles, he offered them money for their secret. (See *Simony.*) He then went about making proselytes, carrying with him a Tyrian courtesan, whom he represented as Helen who had been the cause of the Trojan war, and sometimes as Minerva; calling her, at the same time, the first intelligence, or mother of all things. Other stories are related of him, but are not well authenticated. It has also been said that he was worshipped as a god at Rome, and that his statue was erected there, with the inscription *Simoni Deo sancto.* His followers are called *Simonians.* See *Heretics.*

SIMON, ST; an ancient French family, which claims to derive its origin, through the counts of Vermandois, from Charlemagne. Louis de Rouvroy, duke de St Simon, a peer of France, known as the author of some very curious memoirs, was born in 1675, and died in 1755. He was employed in several diplomatic missions, and was made one of the council of regency by the notorious regent, duke of Orleans, after whose death he retired to his estates. His memoirs remained a long time in manuscript, and were afterwards published in a mutilated form, with many suppressions. The first complete edition appeared in Paris, in 1829—30 (in 21 vols., 8vo.), under the title of *Mémoires complets et authentiques du Duc de Saint Simon sur le Siècle de Louis XIV., et la Régence, publiés pour la première Fois sur le Manuscrit original entièrement écrit de la Main de l'Auteur, par M. le Marquis de Saint Simon.*

Claude Henri, count de St Simon, founder of the politico-philosophical-religious sect of St Simonians, or of the New Christianity, which has recently attracted attention in France, was born in 1760. We know little of his youth; but he appears to have been early tinctured with a spirit of enthusiasm, as we are told that he caused himself to be called, every morning, with the words, "Get up, count; you have great things to accomplish." He was attached to the French auxiliary corps, which served in America in the last years of the revolutionary war, and, soon after his return to France, was promoted to a colonelcy. Previous to the breaking out of the French revolution, the count travelled in Holland and Spain; but he took no part in the great events of 1789. He died in 1825, the last thirty-four years of his life, if we may believe his own account, having been devoted to the objects of his mission, as the apostle of the New Christianity. His disciples are not very communicative in regard to the history of their founder, whose reputation appears not to have been always the best. In 1790, he entered into financial speculations, for the purpose, as we are told, of raising the funds necessary to aid his great projects. His partner not participating in his philanthropic views, St Simon retired from the business at the expiration of seven years, and next applied himself to the study of the sciences. He took up his residence near the polytechnic school, formed an acquaintance with the professors, and attended their lectures. Three years were thus occupied with the study of inorganic nature, and the succeeding four years were spent in the study of organic bodies, for which purpose he lived near the medical school, conversed with the professors, heard their lectures, and kept open house and free table for men of science. A tour in Germany, England and Italy, completed his 'inventory of the philosophical treasures of Europe,' and he now felt himself master of his ideas and ready to communicate them. His fortune, however, was exhausted, and his friends had deserted him. His *Introduction aux Travaux scientifiques du 19e Siècle* (1807), contains an exposition of his philosophical views at this time. After the restoration, in 1814, his attention was turned to politics; and, partly in conjunction with his disciple and adopted son Augustus Thierry and others, he wrote several works, which show his political opinions. Among these are *De la Réorganisation de la Société Européenne* (1814); *Du Système Industriel* (1821); *Catéchisme des Industriels* (1824); *Discussions politiques, morales et philosophiques* (4 vols., 1817—18); and *Opinions littéraires, philosophiques et industrielles.* Seven years had thus been spent in obtaining pecuniary resources, seven in collecting scientific materials, ten in effecting the reformation of philosophy, and ten that of politics; and St Simon, reduced to extreme want by the exhaustion of his resources, and to despair by neglect and ill success, attempted to shoot himself through the head. The ball grazed his forehead: but "his hour," say his pupils, after their master, "was not yet come; the philosopher and legislator becomes the prophet of a law of love; God raises him from the abyss; sheds over him a religious inspiration which animates, sanctifies and renews his whole being; a hymn of love is poured forth from that mutilated body; the divine man is manifested; the New Christianity is sent to the world; the kingdom of God is come upon earth." The *Nouveau Christianisme* (8vo., 1825) is an exposition of St Simon's religious notions. By this new religion, the principle of antagonism is done away; a universal church, a brotherhood of peace, unites all mankind, and sanctifies all. Science is holy, industry is holy; society is formed only of priests, savans and labourers *(industriels);* government consists only of the chiefs of these three classes. The basis of the political system of the St Simonians is a new mode of the distribution of property, by substituting the right of capacity for the right of inheritance. "Each one according to his capacity, each capacity according to its works." is the rule of this new right. All property becomes, at the death of the proprietor, the property of the church or society; all children receive a general education to a certain point till their *capacities* are ascertained, and then, *chacun à sa capacité,* each becomes a priest (or artist), savant, or *industriel*, as his talents point the way; and thus whatever he acquires is the fruit of his own industry. There is nothing, however, like a distinct system developed in the writings of St Simon or his disciples, but abundance of crude notions and vague speculations, of which we cannot attempt to give an account. See *Doctrine de St Simon* (3d ed., 1831), and the numbers of the *Globe* and *Organisateur*, the organs of one party, and of the *Revue Encyclopédique* (since the close of 1831), that of another party of St Simonians. At the time of the death of the founder, this sect consisted of a small number of disciples, of whom Olinde Rodrigues was the principal, and who established the *Producteur*, a monthly journal, as the organ of their views. This, however, was discontinued for want of funds, when the revolution of July gave a new impulse to the society. A great number of converts was made, funds collected, and the *Globe*, a journal of reputation, passed into the hands of St Simonian editors. Families were organized, churches built, schools constituted, and the hierarchy established, under Enfantin and Bazard, who were entitled *pères suprêmes* (chief fathers). But when the time came for the development of a regular system, schisms began to appear in the society. The most important of these took place in November, 1831. Enfantin and Bazard were at the head of two parties, Rodrigues of a third, and Carnot (editor of the *Revue Encyclopédique)* belonged to a fourth. These divisions were produced partly by questions of government and partly by differences of doctrine. One of the new doctrines, in which, however, all parties seem to agree, is, that man is not, as heretofore, alone to form the political being, but that man and woman together are to form the social individual. But, on this principle, Enfantin declares that the moral law can be revealed only by the co-operation of woman; and he, therefore, awaits the appearance of the woman who shall be called to complete the *couple révélateur*. The *Globe* and *Organisateur* are in the interest of Enfantin. The French government has left the sect to itself; but the courts have decided that St Simonianism is not a religion,—the priests of the society having claimed exemption from military duty on the ground of their religious office. See the *Quarterly Review* for July, 1831, and the *Westminster Review* for April, 1832.

SIMONIANS, ST. See *Simon, St.*

SIMONIDES; a Greek lyric poet, born in the island of Cos, about 557 B. C., went to Athens, where he became the favourite of Hipparchus, and a friend of Anacreon and Theognis. In Thessaly, he was a welcome guest of the Scopades, whose victories at the public games he celebrated in song. According to a story related by Cicero, as he was once sitting at a feast with Scopas, having recited a hymn in praise of his patron, in which he dwelt much on the merits of the Dioscuri, Scopas told him that he could pay him only half of the price promised for the hymn, and that he must get the rest from the Dioscuri, who had occupied as large a share of his praises. Soon after, some one called him out of the house, with the information that two youths wished to speak to him. On going out, he found no person, and before he could return, the hall fell in, burying the guests under its ruins. When the rubbish was removed, it being impossible to distinguish the bodies, disfigured by bruises, Simonides was enabled to determine them by recollecting the order in which they had sat. This led him to the plan of facilitating the recollection of events by certain artificial associations with places or things. (See *Mnemonics)*. Another wonderful escape of Simonides is related. Having once buried a body which he had found on the beach, as he was himself about to set sail, the spirit of the deceased warned him not to trust himself to the deceitful element. He complied with the warning, and soon after received news of the loss of the vessel, with all her crew. Simonides visited Athens several times, and is said to have conquered Æschylus, in a poetical contest, at the celebration of the victory of Marathon. During a residence in Sparta, he sang the heroic death of Leonidas, in several poems. An invitation from Hiero, king of Syracuse, induced him to go to Sicily, where he spent the rest of his days, and died, B. C. 467. Of his numerous poems, some fragments have come down to us, which are contained in Brunck's *Analecta*. The ancients celebrate the grace, ease, and simplicity of his poems; but he is accused of avarice, and of having been the first to take pay for his writings. The invention of five letters of the Greek alphabet, η, ζ, ξ, ψ, ω, is attributed to him.

SIMONY; the crime of trafficking with sacred things, particularly the corrupt presentation of any one to an ecclesiastical benefice for money or reward. Simony is also committed by buying or selling the sacrament of the Lord's supper, baptism, ordination or absolution. It is a crime severely prohibited by all Christian sects, though the theologians of the Roman *curia* do not consider the selling of certain church offices simony. The name of this offence in which the seller and the buyer are equally guilty, is derived from the Chaldæan Magus, Simon, who, according to the Acts of the Apostles, wished to purchase from the apostles the communication of the Holy Ghost by the imposition of hands. Simony was committed in the middle ages with scandalous publicity and frequency.

SIMOOM, OR SAMIEL (that is, *poison*); a noxious, hot wind, which blows at the period of the equinoxes, on the borders of Arabia, in the neighbourhood of Mecca, on the Euphrates, and in Persia, and is fatal to animal life. It comes over burning deserts of sand, and its approach is indicated by terrible appearances. A dark yellow hue suddenly pervades the eastern horizon; a thick sulphureous exhalation rises from the ground, which is first hurried round in rapid gyrations, and then ascends into the air, and covers the whole heavens. Hissing and crackling noises are heard, and a hot current of air, accompanied by low sounds, rushes over the ground. Even the beasts manifest their terror by their howlings, and, when the burning current overtakes a caravan in the desert, bend their heads to the earth; camels plunge their nose and mouth into the sand. Travellers may have learned this means of safety from them, as they also throw themselves down with their faces to the ground, and lie immoveable until the hot exhalation has passed, which it does within a half hour at the most. Persons in a stream have nothing to fear. The bodies of those who perish by it swell, and very quickly begin to putrefy. The fine dust which the wind brings penetrates into all the folds of the clothes, and even into boxes and bales. It is not improbable that these and other hot winds are overcharged with electricity.—The simoom is different from the *chamseen* or *khamseen*, a south-west wind, which blows three or four days, between July 15 and August 15, in

Egypt, Arabia, and on the Persian gulf, and is accompanied by similar appearances. It is very hot and drying. In those whom it surprises in the desert, the lungs are compressed, the breathing difficult, the skin dry; the body appears as if consumed by fire. The corpses of those who have thus perished are dried up, but do not putrefy. The same means of protection are employed as against the samiel. Still different from either of these winds is the *harmattan* (q. v.)

SIMPLON (Italian *Sempione);* a mountain in the Swiss canton of Valais, 10,600 feet high, belonging to the high Alpine ridge which separates Switzerland from Italy, and extends from Mont Blanc to St Gothard. (See *Alps.*) As this ridge is traversed by a valley, which lies below the snow line, Napoleon laid out one of his most remarkable roads here. (See *Alps, Roads over.*) The Hospitium, left unfinished by Napoleon, was sold by the government of the canton to the fathers of the Great St Bernard in 1824, who have since completed it.

SIMPSON, Thomas, an eminent English mathematician, was born at Market Bosworth, in Leicestershire, in 1710. He was brought up to his father's profession of a weaver, but such was his love of study, that he soon quitted his profession and supported himself by teaching a school. An absurd propensity for astrology, while it rendered him a sort of oracle in his neighbourhood, involved him in some difficulties, which obliged him to remove to Derby, where he continued some years, following his trade in the day, and teaching a school in the evening. Notwithstanding his industrious habits, he found it difficult to provide for his family, and he was then induced to remove to London in 1736. Here he followed his business in Spittalfields, and taught mathematics at his leisure hours, and so great was his success, that he brought his wife and three children to London, where he settled himself permanently.

His first work was a new treatise of Fluxions, which was published by subscription in 1737, and such was its reception, that, in 1740, he published a treatise on the nature and laws of chance, which was followed in the same year, with his essays on several curious and interesting subjects in speculative and mixed mathematics. These works extended his reputation even to foreign countries, and he was elected a member of the Swedish Academy of Sciences. His doctrine of annuities and reversions, appeared in the same year, and an appendix to it in 1741. Supported by the influence of Mr Jones, the father of Sir William, our author was, in 1743, appointed professor of mathematics in Woolwich, and the same year, he published his mathematical dissertations. In 1745, he was admitted a fellow of the royal society, having been excused his admission fees on account of his limited income. In 1744, he published his treatise on Algebra, which was enlarged in 1755. In 1747, he published his elements of Geometry, which was reprinted in 1760, and subsequent years. In 1748, Mr Simpson printed his trigonometry plane and spherical, with the construction and application of Logarithms. His select exercises for young proficients in mathematics appeared in 1752, and his last work, viz. his miscellaneous tracts, came out in 1757. Mr Simpson was likewise the author of several papers which appeared in the philosophical transactions, and he edited the lady's diary from 1754 till 1760, a work to which he had been a contributor since 1736, and which he raised to a very high degree of respectability. He died on the 14th May, 1761.

SIMSON, Robert, M.D., an eminent Scottish mathematician, was born on the 14th October, 1687, O. S. at Kirktownhill, Ayrshire, a small property which, for some generations, had been the residence of his immediate progenitors. He was the eldest son, and was educated at the university of Glasgow, where he devoted his attention principally to the philosophy and theology of the schools, and such was his progress that, at an early age, during the illness of the professor, he taught the class of oriental languages. While he was studying theology at the divinity hall he took a fancy for mathematics, and amused himself occasionally with this new study; but it soon gained upon his affections, and it was not long in supplanting his passion for theology. He accordingly abandoned himself wholly to the study of geometry, preferring the sure methods of the ancients to the analytical method which had now so many supporters.

At the early age of twenty-two, the members of the college offered him the mathematical chair in the university of Glasgow, in which a vacancy was soon expected. Reluctant, however, to advance at so early an age from the situation of a student to that of a professor in the same college, he solicited and obtained permission to spend one year in London. Here he became acquainted with Mr Jones, Mr Caswell, and Mr Ditton, who gave him ample information respecting the progress of mathematics both in England and on the continent of Europe. When the vacancy in the mathematical chair occurred in 1711, he was unanimously elected, after giving a specimen of his skill in mathematics, and of his dexterity in teaching geometry and algebra. Immediately after his admission, which took place on the 20th November, Mr Simson entered upon the duties of his class with much zeal and success, and, instigated by the advice of Dr Halley, he directed his private studies to the restoration of the ancient geometers. His first labour was to restore the Porisms of Euclid. The next object of his labour was the "Loci Plani" of Apollonius, which he completed in 1731, but which he did not venture to publish till 1746. Notwithstanding all this caution, he recalled all the copies in the hands of his bookseller, and kept the impression by him for several years. He afterwards revised and corrected this work, which greatly extended his reputation, and obtained him a high place among the geometers of his age. In 1750, our author published his *Sectionum Conicarum libri Quinque,* a work which he intended as an introduction to the study of Apollonius. The restoration of the elements of Euclid was the great object of Dr Simson's care; and, along with the data, he published this valuable work in 1750. The *Sectio Determinata* of Apollonius next occupied his attention; but this work was not published till after his death, when it was printed, along with the Porisms of Euclid, and published at the expence of earl Stanhope. Mr Simson died on the 1st December, 1768, leaving to the university his valuable library. He was never married. See his life by Dr Traill, London, 1822.

SIN. Every evil disposition, thought or action, by which the divine law (whether the positive revealed law, or the moral law, which God has implanted in the mind of man) is violated, is sin in the wider sense of the word, considered in relation to morals or religion; considered as an offence against the laws of society, an evil act is called a *crime*, *misdemeanour*, &c. Strictly speaking, sin can attach only to an intelligent and free agent, who has or might have a knowledge of the existence and sacredness of the law. The imputation of sin to the transgressor of the divine law is the regarding him as the author of this transgression, and as justly punishable for it. Theologians and moral philosophers distinguish several species of sins, either with reference to the nature of the law which the sinner transgresses, or to the subject against which the sin is committed, or to the sinner, or to the nature and quality of the action itself. In the first point of view, sins are divided into those of omission and commission; but this division amounts, in fact, to nothing, because, whenever a man sins, he omits something which he ought to have done, and commits something which he ought to have left undone. The same sin may fall under either class, according as we express the moral law, which is violated positively or negatively. The moral relations between man and the objects of his duty are much too close to allow an essential difference between omission and commission. Sins are divided, like duties, into those towards God, our fellow-men and ourselves; but this division is little more than formal, for every sins falls, in some degree, under all three heads. As regards the sinner, sins are divided into premeditated and unpremeditated, the latter being the fruit of sudden impulse, and not of deliberate purpose. Moreover, there are internal and external sins (the former include bad appetites, evil thoughts, &c.), conditional and unconditional sins. Sin is often used also for that state of the soul which is properly called sinfulness. Lastly, sin is divided by theologians into original sin and actual sin; the former again into inherent sin (denoting that corruption of nature which is believed to have been transmitted from the first man to all his offspring), and imputed sin, denoting that liability to punishment to which all the posterity of Adam are subject by the imputation of his trangression. Actual sin is again divided by theologians into mortal and venial. Mortal sins, according to 1 John v. 16, 17, are those the commission of which is followed by spiritual death, that is, the loss of God's grace, and differ from those which may be more easily forgiven. All Christians, in early times, were of opinion that there was a difference between those sins which a Christian might fall into from the strength of natural propensity, and those which evidently showed that the offender was yet entirely in the slavery of sin, and not regenerated, such as the denial of Christianity, murder, theft, adultery, fraud, &c. But while one party (which subsequently became predominant) acted on the principle that the church was bound to receive every sinner, on condition of sincere penitence, and that absolution and communion could not be withheld from him, particularly in the hour of death, if his repentance had continued until then, there was another party which would never receive again one who had broken his baptismal vow, by committing a mortal sin, because, said they, we know of no revelation which authorizes us to do this. What sins were to be regarded as mortal was not fully determined by the first fathers of the church. Augustine considered blasphemy, incontinency and murder, as falling under this class. Petrus Lombardus (*Magist. Sentent.* ii, 41, 6), following Cassianus and Gregory the Great, enumerates the following: *superbia* (pride), *avaritia* (avarice), *luxuria* (voluptuousness), *ira* (wrath), *gula* (gluttony), *invidia* (envy), *acedia* (sluggishness of heart); and, in order to facilitate the remembrance of them, invented the word *saligia*, composed of the initial letters of the several names. These are the seven mortal sins which, since the twelfth century, have been enumerated in the scholastic theology, and even now are set forth in the doctrinal works of the Catholics, particularly in Catholic catechisms for the people, though even the contemporary of Petrus Lombardus, Richard de St Victor (*De Differentia Peccati mortalis et venalis*, Rouen, 1650), justly makes the degree of immorality in the sinner, the wrong done to others, and the contempt shown for God, the standard of mortal sin; and other schoolmen gave the name of *crying sins* to murder, sodomy, oppression of innocence, and forcible retention of well-earned wages, and, in fact, to all those sins which St Paul mentions in Gal. v. 19—21. But many modern Catholic writers have found this number insufficient, and some of them have classed other mortal sins under some of these general heads, while others give an entirely different list. and some, again, as the writer of the article *Péché*, in the *Dictionnaire de Theologie* (Toulouse, 1817), mention none by name, and say it is extremely difficult, in some cases, to distinguish whether a sin is mortal. Many Protestants also (the Calvinists excepted) adopt the distinction between mortal sins and those which may be forgiven; but they make this difference to consist only in the degree of moral responsibility or desert of punishment; so that every intentional and well-known violation of duty is followed by the loss of God's grace. The views of the Greek church are much like those of the Roman Catholic on this point.

SINAI; a mountain of Arabia, 150 miles southeast of Suez, near the head of the Red sea, celebrated in Scripture history as the spot whence the law was given to Moses. It is situated in the heart of a vast and gloomy desert, the few inhabited spots of which are occupied by hordes of Arabs, who subsist by plunder, and render the road impassable, unless for a large and well-defended caravan. At the foot of the mountain is the Greek convent of St Catharine, founded in 1331, by William Bouldesell, which has ever since continued to afford hospitality to the pilgrims whose zeal impels them to brave the perils of this road. The monks are kept, as it were, imprisoned in this convent by the wild Arabs of the surrounding country.

SINAMARI; a river of French Guiana, which flows into the Atlantic in lat. 5° 39′ N. To its banks were transported the victims of the 18th Fructidor.

SINAPISM; a poultice of mustard. These poultices are made in different ways. One is of mustard-seed and lin-seed or crumb of bread, equal parts, vinegar a sufficient quantity; another of mustard-seed pulverized, any quantity, vinegar a sufficient quantity.

SINCAPORE, or SINGAPURA; capital of a small island at the southern extremity of Malacca, lat. 1° 15′ N.; lon. 104° E. It was ceded, with the neighbouring islands within ten miles around it, to the East India company by the sultan of Johor, in 1824, who had previously, however, made a similar treaty, in consequence of which it had been occupied by Sir T. S. Raffles in 1819. The climate is healthy. The interior is laid out in gardens and plantations, and its shores supply a valuable article of commerce in the agar-agar, a kind of sea-weed *(fucus saccharinus,)* which is used in China for paint, glue and varnish, and the finer sorts make a sweetmeat. The town stands on a point of land near a bay affording a safe anchorage at all seasons, and commanding the navigation of the straits of Malacca. The population, which, in 1819, was 150, had increased, in 1830, to above 16,600 persons, exclusive of the garrison and the floating population. Many of the settlers are Chinese. The exports exceed £3,000,000 per annum. See Crawford's *Embassy to Siam and Cochin-China.*

SINCLAIR, Sir John, Bart., a very active and useful agriculturist and general statist, was born at Thurso Castle, in the county of Caithness, May 10th, 1754, and received his education consecutively at the universities of Edinburgh, Glasgow, and Oxford. In 1775, he became a member of the Scottish bar, and was afterwards called to the English bar, but he did not follow out the profession of the law. In 1776, he married Sarah, only daughter and heiress of Alexander Maitland, Esq. of Stoke Newington, in the county of Middlesex; by whom he had two daughters; Hannah, since dead, who wrote the letters "On the Principles of the Christian Faith," and Janet, the widow of the late Sir James Colquhoun, of Luss, Bart.

In 1780, he was elected member of parliament for the county of Caithness, where his estates were situated; and he had also the same honour conferred on him at the elections in 1790, 1802, and 1807; but as the county of Caithness was only alternately represented in the British parliament, he was, during the intervals, chosen for the boroughs of Lostwithiel in Cornwall, and Petersfield in Hampshire. He thus continued, with the intervention of a very short period, a member of the House of Commons, till July, 1811, being a space of more than thirty years. His attendance on his parliamentary duties was most assiduous; and, in 1782, he published a tract, entitled, "Lucubrations during a short Recess; with some Thoughts on the Means of Improving the Representation of the People." This he followed up by another, in the same year, under the title of "Thoughts on the Naval Strength of the British Empire, in answer to the late Lord Mulgrave, one of the Lords of the Admiralty." After pressing on the attention of the Ministry the propriety of establishing a militia force, he published his "Considerations on Militias and Standing Armies;" and the suggestions which he threw out on that occasion were afterwards adopted. His only other connexion with the press about this period, was in the publication of an anonymous tract, "The propriety of Retaining Gibraltar, impartially considered."

In 1785 Mr Sinclair engaged seriously in inquiries on political subjects in general, and collected a great mass of materials from different sources. The first published form which part of these assumed, was in an essay "On the Public Revenue of the British Empire."

In 1786, he made an extensive tour through the northern countries of Europe, with a view of contemplating their political and commercial phases. In the course of this journey, he travelled above 7500 miles, and made many valuable observations on the political, commercial, agricultural, moral and religious state of the Netherlands, Holland, Denmark, Sweden, Russia, Poland, Austria, and Prussia. It was not till the year 1830, when Sir John published two large volumes of his correspondence, that a digest of the remarks made during these travels was submitted to the public.

In 1788, Sir John Sinclair was created a Doctor of Laws by the university of Glasgow, and, in the same year, was married, for the second time, to Diana, daughter of Alexander Lord Macdonald, by whom he had thirteen children, seven of whom were sons, and six daughters. His oldest son, the present Sir George Sinclair, is member for the shire of Caithness.

In 1790, the idea of that great national undertaking, the Statistical Account of Scotland, had suggested itself to the mind of Sir John Sinclair; and being a lay member of the Assembly of the Church, it occurred to him that he might be able to prevail on a great proportion of the clergy to furnish such general information regarding the state of Scotland, as should afford data for an estimate of the political situation of that portion of the United Kingdom. His original plan was to draw up a general statistical view of North Britain, without reference to parochial districts; but such a mass of useful facts and observations was presented in the communications sent him by the clergy, that this more abridged idea was set aside, and the work prepared for press in the more extended form in which it was given to the world. After unwearied exertions, Sir John succeeded in bringing the first volume of this great work before the public on the 25th May 1791, just a year after its suggestion to the members of the church. It proved so far superior to any thing of the kind which had ever before appeared, that it could not do otherwise than give great satisfaction; and all who were interested in the improvement of the country or the welfare of its inhabitants, came at once forward for its patronage and support. Much difficulty was, however, found in the furtherance of the undertaking. Many circumstances occurred to prevent unanimity among such a large body as the clergy of the Church of Scotland. From the commencement some had thought the scheme chimerical, and others had openly professed their dislike to it, nor did they now care about retracting opinions rashly given. Old age and infirmity prevented others; and not a few were unable to overcome the jealous fears of their parishioners, who set down the whole as a deep laid scheme of government to accomplish some new plan of taxation. Nor did the tenants in country parishes relish inquiries about their farm produce, and the value of their stock, lest landlords might avail themselves of the information, by increasing their rents. After waiting another twelvemonth, during which he had written many thousand letters, Sir John found, on the first of June, 1792, that there was still a deficiency of not less than 413 parochial accounts. In this dilemma various plans were suggested for accomplishing the completion of this great national work. A recommendation from the General Assembly was one of the measures resorted to; and several of the leading ornaments of the church, made personal application to their clerical friends, to exert themselves within the bounds of their several presbyteries. Added to these, the Duke of Argyle, the Earl of Leven, then commissioner to the assembly, the Earl of Fife, and other extensive landed proprietors and church patrons, exerted themselves in the cause; yet Sir John was still destined to find, that some, from unwillingness to engage in the undertaking, would do nothing; and that others, from a spirit of procrastination, promised with little intention of performing. Notwithstanding all these multiplied and mortifying difficulties, Sir John was determined not to be baffled in the accomplishment of the Herculean task which he had set himself. He engaged five statistical missionaries, to whom he appropriated different divisions of the country; and, by their means, the accounts of no less than twenty-five parishes, which must otherwise have been totally awanting, were ably and accurately drawn up. On the 1st of January, 1798, seven years and a half after its commencement, the work was brought to its completion. It was comprised in twenty thick octavo volumes; and to these another was subsequently annexed. A New Statistical Account of Scotland is at present (1838) in the course of publication.

In May, 1793, Sir John printed and circulated a plan for establishing a Board of Agricultural and Internal Improvement; in which he pointed out the nature of its plan, and the beneficial results which might be expected from it. On the 15th of the same month he moved, in his place in Parliament, an address to the Crown, in favour of the proposed establishment. An animated and interesting debate took place on the occasion, which was adjourned till the 17th, when, on a division, it was carried by a majority of 75; 101 voting in its favour, and only 26 being opposed to it. The Board, soon after, was not only appointed, but received a charter from the crown, in which Sir John was nominated its first president

Having accomplished the establishment of the Board of Agriculture, Sir John's next favourite project was to secure the passing of "A General Bill of Enclosure;" but he found the subject hedged in by obstacles on all sides, which could not be got over. At a subsequent period, however, under the administration of Lord Sidmouth, Sir John succeeded in carrying through a bill of great importance to the object in view.

So early as 1783, Sir John had acquired considerable reputation as a writer on finance, by a pamphlet which he then published, in opposition to the gloomy views promulgated by others. This subject he afterwards followed out in his "Review of the Financial Administration of the Right Honourable William Pitt;" to which an Appendix was added in 1789, and a third part in 1790. In 1803, the whole of Sir John's lucubrations on these and collateral subjects were collected into an elaborate work, in three octavo volumes, under the title of a "History of the Public Revenue of the British Empire, containing an account of the Public Income and Expenditure, from the remotest periods recorded in history to Michaelmas, 1802."

About the year 1797, Sir John began to suffer from the effects of his over-exertion, which, although they did not show themselves in any specific form, yet had induced a weak and enervated state of the body; and to his enthusiastic temperament, it was a misery to find that he was almost unequal to the task of managing his private affairs—pursuing useful inquiries—or following out those political investigations, which the contemporary aspect of civil society seemed to demand. From the decay of his own health, he was led to the consideration of the subject in general, and was much struck in pursuing his statistical observations, by the fact, that so few of the numbers of mankind born attain any extent of years, even in the healthiest climates, and that even when life is prolonged, it is to so many little less than a burden, from the embitterments of disease. This led him into a course of reading on the subject, and the result was a pamphlet in 4to, published in 1803, entitled "Hints on Longevity." In the same year, Sir John collected his Essays on Miscellaneous Subjects, and published them together in an 8vo volume.

From the attention excited, both at home and abroad, by his pamphlet on Longevity, as well as from his bias towards codification, Sir John now began seriously to turn his mind to an extensive work on the general subject of health, in which he proposed to condense into a manageable form, all the widely scattered materials to be found in ancient and modern authors. This was published as a Code of Health and Longevity in four vols. 8vo., but afterwards abridged to one vol. It was followed in 1819 by his Code of Agriculture, a work which has gone through several editions and translations, and which is very generally esteemed.

In 1810, Sir John Sinclair was made a privy councillor; and in 1811, under the administration of Mr Percival, he was appointed cashier of excise for Scotland, a situation which he for a time continued to hold.

Early in 1815, he was induced to take an excursion to the Netherlands, principally with the purpose of examining into the agricultural state of that country, and of ascertaining the relative prices of grain in Great Britain and the continental corn countries, more especially Flanders and France, the causes of such difference, and the most effectual means of preventing for the future any material variations. After his return, he threw his observations together in a printed form, in a pamphlet entitled, "Hints on the Agricultural State of the Netherlands compared with that of Great Britain."

Besides the works which we have specified, Sir John published a great variety of smaller pamphlets and tracts, all bearing on points of agriculture or political economy. He died in George street, Edinburgh, where he had resided for the last twenty years of his life, on the 21st December, 1835. See his Memoirs in the Quarterly Journal of Agriculture, and also those published by his son.

SINDH. See *Indus*.

SINDON. See *Byssus*.

SINE, in mathematics; a line drawn perpendicularly from one end of an arc upon the radius, drawn to the other end. The sine of the arc is also the sine of the angle subtended by the arc. Trigonometry teaches that, in plain triangles, the sides are to each other as the sines of the opposite angles; in spherical triangles, however, the sines of the sides are to each other as the sines of the angles opposite to these sides. Hence it appears how important the sine is for finding certain parts of triangles, from certain given parts. To render these calculations (which occur so often) more easy, tables have been drawn up, in which the logarithms of the sines are given.—By *cosine* is understood the sine of the complement of the arc (such an arc as, if added, would make it ninety degrees).—*Versed sine* is that portion of the radius which is intercepted between the sine and the arc. (For the other important lines in trigonometry, as the *secant*, *tangent*, &c., see the respective articles.) Among the many tables, we mention only those of Vega, and the *Tables Portatives, par François Callet*, published by Didot. See *Logarithm*.

SINECURE (Latin, *sine cura*, without a cure); properly, an ecclesiastical term signifying a benefice without cure of souls. (See *Abbés Commenda-*

taires.) It has hence come to be applied to any charge or post without duties attached to it. The gross abuses which exist in this country in regard to sinecures, have arisen mostly from changes in the state of society, alterations in the management of the revenue, or the administration of justice, and from the union of the three kingdoms. The offices, with their emoluments, have thus been kept up when the duties had ceased. Besides the absolute sinecures, there are offices of which the duties are discharged, for a small salary, by a deputy, while the placeman pockets the principal profits. In the departments of the army, navy, revenue, administration, &c., are many such cases. The total amount of money thus paid, in great part, to noblemen, or their relations and dependants, is little short of half a million pounds sterling a year.

SINGING. In the article *Music* we have touched upon the origin of vocal, as well as instrumental music. Singing unites, in its perfection, music with lyric poetry: we say lyric poetry, because the poetry must accord with the music, and music is, in itself, a language of feeling. The chief elements of a good singer are, 1. a voice distinguished for melody and compass; 2. skill to read notes correctly and readily, and accurate intonation; 3. a distinct utterance; and 4. adaptation of the delivery to the meaning of the words, in which the singer shows his taste and feeling. There are three chief methods, or schools of singing—the Italian, German, and French. (See *Music*, and *Italian Music.*) Formerly, the Italians only had a proper school of singing, because, with them, singing was early made a subject of scientific instruction. The Italian method is distinguished by peculiar attention to the cultivation of the vocal organs, in order to give the voice the greatest clearness and flexibility; secondly, by the soft swelling and blending of the tones, which is called *portamento di voce*, and gives to the whole a charm and keeping similar to the effect of a perfect picture; thirdly, by a distinct utterance of the words, though in this the Italian singers are greatly aided by their melodious language. Another advantage of this school is its skill in *recitativo*—a musical discourse, between singing and speaking (though, even among the Italians, this latter excellence has become comparatively rare of late). The defects of this school are, that it often runs into an excess of art and ornament, which, among many other causes, is partly owing to the circumstance that, formerly, composers wrote only the fundamental notes for the singers, and left them to supply the rest. But Rossini has introduced the fashion of writing all the ornaments in full. The Italian style of singing appears to the greatest advantage in the concert, and the buffo style of the opera. The German school, or style, is more unbending, and better adapted for church music. The fugue is its triumph; firmness and steadiness its excellences. The German aims at simplicity, character, and deep meaning, and wishes to make the music a perfect expression of the feeling. Hence the German singer often neglects to make the words distinctly intelligible. Yet the Germans have adopted much from the Italians, in regard to the cultivation of the vocal organs, as well as the execution, and have treated singing most scientifically. There is a surprising similarity of character in the schools of singing and painting, in each of these two nations. The French method borders closely on declamation, and shows the proneness of the nation to conversation. The language is very unfavourable for singing, on account of its want of verbal accent, and the swallowing of the final syllables. Though the German idiom can by no means be said to be well adapted for singing, on account of its many consonants, yet the French is still less so, particularly from its many nasal sounds. The French singing is, however, truly fine in the simple national songs: these recall the time of the troubadours, and have something uncommonly charming. With the *chansons*, *vaudevilles*, and *rondelays*, the case is different: in these, the French aim chiefly at wit and point, and the song is made subservient to the words, not the words to the song. All three nations have many works for giving instruction in singing, but none so many as the Germans.

Singing Schools.—The study of singing, as an art, has been hallowed by its devotion to the service of religion, both in ancient and modern times, and it has been considered an effectual instrument in the civilization of mankind. It was a law of the Egyptians, that children should be instructed in particular branches of music and singing: we may therefore justly infer that singing schools existed in Egypt. Among the Jews, singing was connected with all their religious ceremonies. Samuel established, during the peaceful years of his rule, the celebrated schools of the prophets, in which singing, music, and poetry were taught. Under David, the chief of the Levites gave instruction in singing, and had the direction, with twenty-four assistants, of a choir of 4000 singers and musicians. Among the Chinese, also, singing schools have been established from the most remote times; two of the principal mandarins are directors of the singing schools at Pekin; eight head teachers, and sixteen under teachers, with eight subordinate mandarins, eight musicographers, and eighty scholars, compose the institution. Among the Jews, splendour, and the love of the fine arts, reached their height under Solomon, and no exhibition of modern times can be compared with the musical festival at the dedication of Solomon's temple, at which, according to tradition, were united 200,000 singers, 40,000 harps, 40,000 sistrums, and 200,000 silver trumpets. Among the Greeks, the oracles were always delivered in song. The scholars of Pythagoras were obliged, on waking in the morning, and before going to sleep in the evening, to chant songs, in order to overcome the disturbing influences of the world. The greatest variety of hymns were sung in the worship of Apollo. The singing schools of the Greeks are celebrated: at their great public games, musical contests took place, and the four most sacred festivals, the Olympic, Pythion, Nemæan, and Isthmian games, as well as the Panathenæa, thus became schools of music. Through the Etruscans and Greeks, singing was introduced among the Romans. Under the Roman emperors, the passion for music and singing reached its height; many of the emperors gave themselves up to it with ardour. But proper singing schools were not known in ancient Rome, as the most distinguished musicians were foreigners. Among the Gauls, music was taught and practised by the Druids, and Bards. With the religion of the Druids, these singing schools were also introduced into Britain. From the earliest times, the singers of Britain were celebrated; after the extinction of Druidism, they were called *minstrels*, and resided chiefly in Wales. What has been said of the Tuiscon of the Germans, is very uncertain; however, the Germans had singers, and national songs, particularly martial songs, which were transmitted from mouth to mouth. With the introduction of Christianity, the singing schools acquired a higher and nobler character. The first Christians, particularly the Therapeutæ, in Palestine and Egypt, sang hymns in alternate choirs, during their religious ceremonies. Clemens Romanus, a companion of the apostle Paul, was the first to establish the head singer, to begin the psalm, and lead the assembly; the elders of the church were also the directors of the singing. Ambrose and Chrysostom warmly promoted it. As early as the first centuries, particular singing schools were established. Cyril relates that St Theodosius was head singer at the church, in his native place, from his earliest childhood, and St Nicetius, archbishop of Treves, in the first half of the sixth century, resolved to have all the boys, born in his diocese, instructed in singing as soon as they could talk. Proper seminaries for spreading the knowledge of singing were first established in Rome by pope Sylvester, between 314 and 335. A singing school, belonging jointly to all the churches in the city, was instituted, and was obliged to furnish choirs for all the sacred masses and religious ceremonies conducted by the pope or presbyter. The director of this singing school, called *Primicerius*, instructed select youths in singing, reading of the Holy Scriptures, and in good manners; these scholars were called *ministrales* and *clerici*. Pope Gregory the Great (590—604) greatly extended and improved the singing schools. In the school of the Lateran, the couch was still to be seen, in the ninth century, on which Gregory reposed while he instructed the singers, as also the rod with which he threatened the boys, and his *Antiphonarium*. (See *Antiphony.*) The boys who sang well were maintained by the school, and afterwards made chamberlains to the pope. Most of the scholars were taken from the Roman orphan asylum, whence the singing school was also called *orphanotrophium*. The same pope sent Augustin or Austin as a missionary to England, accompanied by many assistants and singers. Augustus and king Alfred, at the end of the ninth century, spread the art of singing in Great Britain. Charlemagne introduced it into France and Germany. He sent singers to Rome, who were there instructed, and, on their return, founded singing schools, first at Metz and Soissons, afterwards in many other towns. Charlemagne often presided in his principal school, and directed the instruction; his daughters practised music three hours daily. All the music masters were taken from the clergy. From the time of Pepin, a royal chapel was always connected with the royal palace, under the inspection of a music master, called *menestrel*. The so called *gay science* of the Provençals embraced music as well as poetry. The troubadours diffused it from the eleventh to the fourteenth century: the schools of the minnesingers originated from them; the most flourishing period of the German minnesingers was in the thirteenth century; among them were emperors, kings, princes, and counts; but when, at a later period, the use of court fools prevailed, these noble singers became extinct at court, and the art fell into the hands of common mastersingers. In the middle of the fifteenth century, figurate music was already taught in the singing schools at Augsburg. French and German compositions were principally sung. The principal singing choirs of the north of Germany, sprung from the religious zeal of Luther, who advised the study of music, and the cultivation of it, as a part of the religious service. In those early times, when the custom prevailed of performing mysteries, and celebrating many other religious festivals, singing choirs often assisted in these performances. Another kind of singing school, which existed in the twelfth and thirteenth centuries, must also be mentioned. In Italy, princes and states, in the middle ages, had in their service whole companies of singers and players, who appeared in numbers at all the chief festivals. Guido of Arezzo, at the beginning of the thirteenth century, did much for the improvement of singing, and founded new schools. In the sixteenth century, a higher and purer taste for music was awakened, chiefly by Palestrina (q. v.), the famous master, of the old Roman school. The same powerful influence which he exercised over the ancient Italian school of singing, Francesco Durante had over the modern. At the end of the seventeenth century, the singing school of Francesco Antonio Pistochi, in Bologna, was distinguished, which was continued by his famous scholars, Ant. Bernachi and Ant. Pasi. In the eighteenth century, the following schools were celebrated: that of Brivio, in Milan; Franc. Peli, in Modena; Redi, in Florence; Amadori, in Rome; but, particularly, those of Nic. Porpora, Leonardo Leo, and Franc. Feo, in Naples. (See *Italian Music.*) These conservatorios, or public singing and music schools, had the greatest influence, both in Italy and France, in perfecting music.

SINIGAGLIA, in the papal delegation of Urbino, between Rimini and Ancona: a small fortified place with 6200 inhabitants, celebrated for its annual fair, which lasts from July 20 to August 10. During this time, *loggie* or booths are erected along the canal, which are crowded with foreign and native traders, and the place, thronged with jugglers, dancers, &c., exhibits a panorama of Italy in miniature.

SINKING FUND. The term *sinking fund* is applied to a fund appropriated by a government to the purchase or extinguishment of its own debts. Where a government merely directs its treasurer to apply monies, accruing from permanent sources of revenue, to the payment of the public debt, the term *sinking fund* can only signify the excess of the current revenues over the current expenditures. But the term is not ordinarily applied in such a case. In England, as early as 1716, Sir Robert Walpole projected the sinking fund system, which was partially applied at that time, but brought into operation more fully in 1786, by Mr Pitt. New taxes were imposed to such an amount as, upon estimation, would leave a surplus revenue of £900,000 beyond the current annual expenditure, and the payment of interest on the public debt. Assuming that, for a given number of years, the expenditure of the government would not exceed the estimated amount, and that the resources would yield this surplus, it followed, of course, that the public debt would eventually be extinguished by the application of this surplus to this purpose. And if the revenues, and expenditures for other purposes than the payment of the interest and principal of the public debt were kept at the same amount, it would follow that a greater amount could annually be applied to the payment of the principal of the debt, since a smaller amount would be requisite for the payment of the interest, in consequence of the constant reduction of the debt. All this is quite plain, and it would be equally true whether the payments were the extinguishment of a certain portion of the debt, or the purchase of it by the commissioners, or by trustees, who should hold the amount redeemed, and receive interest upon it, like any other creditors of the government, applying the interest so received to the further purchase of stock. This latter system was adopted in Great Britain, so that, in 1813, when this system of the sinking fund had been in operation twenty-seven years, a little more than £210,000,000 sterling had been redeemed, leaving the net amount of the public debt about £575,000,000, though the nominal amount was then above £812,000,000. In 1786, the debt was about £238,000,000. When this system was adopted, it was represented that, by some mysterious operation, it would infallibly result in the extinguishment of the debt; and the system was celebrated as a grand economical discovery. But after infinite arguments and calculations, and some ridicule on the part of unbelievers, it was found that there was no advantage obtained by buying up a part of the debt, and at the same time contracting an equal or greater amount at an equivalent rate of interest. A sinking fund, in the plain and intelligible sense of being a system of provisions and guaranties for the payment of the interest and redemption of the principal of the public debt, is undoubtedly of great importance, and necessary to sustain the public credit. When no part of the debt is made redeemable, such a system can be carried into operation only by buying up the public securities. But the still continuing to call the part so bought up a portion of the public debt, and receiving interest upon it, and keeping accounts respecting it, are a mere idle ceremony. See *Hamilton, Robert.*

A sinking fund was early established under the government of the United States. From 1803 down to 1817, the sum of 8,000,000 dollars annually was appropriated to that fund, and the stock bought up or paid off by the commissioners, was registered in the treasury office, to the credit of the commissioners of that fund; and the interest accruing on such stock constituted a part of the fund for the payment of the interest and redemption of the principal of the unredeemed part of the debt; and in 1814, a little more than 33,000,000 dollars was entered in the books of the treasury to the credit of those commissioners. Certain revenues were appropriated to this fund, it being intended, like any other similar one, as a sort of pledge of the public faith and resources to the public creditors. But before the close of that war, the fund had, from time to time, been charged with the payment of amounts to which it was inadequate, so that it no longer held out sufficient security to the public creditors. Accordingly, in 1817, a larger amount of appropriations was made to the fund, and by the act of congress of the third of March of that year, it was provided that the certificates of the stock redeemed should be cancelled; that is, the commissioners of this fund did not any longer appear as the creditors of the government on the treasury books. The ordinary and plain mode of proceeding was adopted: when any part of the debt was paid, the securities were cancelled, and did not afterwards appear in the public accounts.

SION; one of the hills on which the city of Jerusalem was built. The part of the city on mount Sion was also called the "city of David," and the lower city, on mount Acra, was called the "daughter of Sion." See *Jerusalem.*

SIOUX, OR DAHCOTAH INDIANS; a family of Indian tribes dwelling to the west of the Mississippi. See *Indians, American.*

SIPHON; a bent tube with one leg shorter than the other, used for transferring a liquid from one vessel to another. This is effected by exhausting the siphon of the air which it contains, or at least so rarefying it that the pressure of the atmosphere on the surface of the water will force up the liquid beyond the highest point of the curve of the siphon, when it will descend by the opposite leg. The power of the siphon is limited merely to decanting, and cannot be applied to raise the liquid above its level in the original vessel; nor will it continue to act after the level of the vessel into which it is decanted becomes equal to that from which it is drawn off. Instead of exhausting the siphon of air, it may be inverted and filled with water; if both ends are then stopped, and the shorter leg immersed in the water to be drawn off, on removing the plugs, the water will flow. If the siphon is large, as is the case where it is used for carrying water over a hill, it may be filled by an orifice in the upper point of the curve, which may then be plugged; and, on removing the plugs of the ends, the water will flow, as in the case last mentioned. A Würtemberg siphon is one in which the extremities of the legs are turned upwards, and which can be kept constantly filled. See *Hydrostatics*, and *Air.*

SIR; a term of courtesy, now applied, without distinction of rank, to all persons, formerly confined to gentlemen (probably derived from *sieur*, *seigneur*, lord). It is also the title of honour of knights and baronets, and as such is always prefixed to the Christian name.—*Sire*, in France, is a term of respect, by which the king is addressed.

SIRACH. Jesus, son of Sirach, was a Jew of Palestine, who, about B. C. 140, after his arrival in Egypt, translated into Greek, for the use of the Alexandrian Jews, the book of Proverbs, which his grandfather, of the same name, had originally composed in Hebrew. The Catholic church admits this book (Wisdom of Jesus, son of Sirach, or Ecclesiasticus) into the canon; by the Protestants it is ranked among the apocryphal books. It is written in a deep religious tone, and abounds in excellent practical rules of life.

SIREN. See *Salamander.*

SIRENS; inferior goddesses, who, by their singing, fascinated those that sailed by their island, and then destroyed them. Homer mentions but two, and represents them as young women, without informing us of their origin. Later poets, who give a different account of their persons, number, names, and places of residence, usually describe them as daughters of the Ætolian river god Achelous, by Sterope, daughter of Amythaon, or by the muse Melpomene, or Terpsichore, sometimes as having sprung from the blood which flowed to the earth from the horn of Achelous, broken in his struggle with Hercules. Euripides, in reference to the latter account, calls them the daughters of the Earth. Sophocles calls them daughters of Phorcus; and this is, perhaps, the oldest account. The author of the Orphic Argonautics places them on a projecting rock on the shore near Ætna, alluring the Argonauts by their fatal singing. But Orpheus sang a heroic song to his lute, and the Sirens flung away their flutes and lyres, and threw themselves into the sea, where they became formidable rocks. These Sirens, thus converted to stone, could not be dangerous to Ulysses, and the poet assumes others in the Tyrrhenean sea, whom he encountered. Plato feigns eight Sirens, who are borne round on the eight heavenly circles and who make the music of the spheres, which others attribute to the nine Muses. There is likewise a story of their trial of skill in singing, with the Muses. The latter were victorious, and, plucking the feathers from the wings of the Sirens, made garlands of them. According to Hyginus, the Sirens received these wings from Ceres, after the rape of Proserpine, because, although in her train, they had not rendered her assistance.

SIRIUS (dogstar); the most brilliant of the fixed stars, and the largest in the constellation of the Great Dog. See *Constellations*, and *Dogdays*.

SIROCCO; a hot, relaxing and oppressive south-east wind, which blows in Sicily and Italy. Some have supposed it to be the same as the simoom, tempered by its passage across the water.

SISTINE CHAPEL (*Cappella Sistina*); a chapel in the Vatican, so called from pope Sixtus IV., who erected it, and destined it for the religious services performed during Passion Week, for which it is still chiefly used. Its dimensions are very large. The whole wall behind the altar is covered by Michael Angelo's picture of the last judgment—a great poem in itself. On the vaulted ceiling, the same master has painted the creation of the world, and around it prophets and sibyls. The other walls contain, in twelve compartments, the productions of Signorelli, Filippi, Perugino, Roselli, &c., which relieve the mind, tasked by the gigantic and overpowering conceptions of the immortal Angelo. Words are inadequate to describe the effect of the celebration of the passion of the Saviour by the pope and cardinals in this chapel during Passion Week, when grand and appropriate ceremonies, aided by incomparable music, combine with the noblest productions of the pencil, to produce the highest effect of Catholic worship.

SISTRA. See *Indian Literature*.

SISTRUM; a musical instrument of the ancients. The Egyptians used it in the worship of Isis, and it is still found in Egypt and Abyssinia. It consists of an oval hoop of metal with a handle. Through this hoop are bored holes, in which are metal bars, which, on agitating or beating the instrument, produce the sound. The finer the metal, and the more perfect the proportion of the holes, the more agreeable is the tone of the instrument. The German guitar has also been called *sistrum.*

SISYPHUS; king of Corinth (which, according to some, he built), and son of Æolus and Enarete. He married Merope, the daughter of Atlas. The Attic poets relate many instances of his art. Theseus, whose dominions he disturbed, slew him. Some impute his death to Jupiter, in revenge for his having informed Æsopus of the rape of his daughter. He is said to have put Death in fetters, so that, for some time no one died. He afterwards overreached Pluto, by getting leave to visit the upper regions, whence he did not return till he had lived out the natural term of his life. In consequence of this, he was obliged to roll a heavy stone to the top of a hill in the infernal regions. The stone no sooner reached the summit than it fell back, thus rendering his punishment eternal.

SIWAH; one of the oases in the desert of Libya, to the west of Egypt, interesting from the ruins which it contains. It lies in lat. 29° 12′ N.; lon. 26° 6′ E.; 120 miles W. from the Nile, and is about six miles long by four or five wide. It is supposed to contain 8000 inhabitants, of whom 2500 are in the town of Siwah The soil is fertile, yielding dates, pomegranates, figs, olives and grapes. Tepid springs, holding salt in solution, are numerous. This oasis is supposed to be the site of the celebrated temple of Jupiter Ammon, the ruins of which travellers think they have discovered at the distance of a league and a half from the town, covering an area of 360 feet by 300. The ruins are in the Egyptian style of architecture, and covered with a profusion of hieroglyphical and other sculptures in relief and painted. Nearly a mile from these ruins, in a grove of date palms, is the celebrated Fountain of the Sun, dedicated to Ammon. It is ninety feet in length by sixty, and appears to be warmer by night than by day. Close by this spring are traces of a temple supposed to be the relics of a sanctuary mentioned by Diodorus Siculus. A mountain in the neighbourhood has been converted into catacombs, some of the tombs of which are on a magnificent scale, resembling the celebrated sepulchral chambers of Thebes in decoration, sculpture and painting. A succession of lakes and temples stretches into the desert towards the west, and tombs, catacombs and churches, are scattered over the waste. At a short distance from the sacred lake there is a temple of Roman or Greek construction, the architecture of which is of the Doric order—a singular circumstance in a country surrounded by immense deserts, and 400 miles distant from the ancient seats of civilization. See Browne's *Travels in Africa and Syria.*

SIX NATIONS. See *Iroquois.*

SIXTUS V., the greatest ruler and statesman among the popes of the three last centuries, was born in 1521, at Grotta a Mare, not far from the little town of Montalto, in the mark of Ancona. His proper name was Felix Peretti. He gave early indications of an aspiring spirit, and was delivered by his uncle, a Franciscan, at Montalto, from the humble labours by which his indigent parents procured their bread. In the schools of this order at Montalto, Pesaro, Fermo, Bologna, &c., Peretti, having joined the Franciscans in 1534, received the usual strict education and instruction of the monasteries. His active spirit soon made him conversant with the scholastic philosophy and theology and Roman literature. In 1544, he gave instruction in the canon law at Rimini, and, in 1546, at Sienna. In 1548, he was made priest, doctor of divinity, and superintendent of the monastic school of Sienna. He made himself famous in Rome, likewise, as an acute logician and preacher, where, in 1551, the favour of some cardinals procured him a permanent residence. Here he gained much reputation, not only by his pulpit performances, but also by his pious works, as the founding of a brotherhood for solemnly carrying the host to the sick, under the name of the society of the holy sacrament, and an asylum for indigent young girls, according to the rule of St Clara. His work on mystical divinity, and his Golden Register, extracted from the writings of Aristotle and his commentator Averroes, were also fruits of this residence at Rome, which, however, was embittered by the vexatious controversies in which his unquiet spirit, and his aversion to the monastic life, involved him. Cardinal Capri, the protector of his order, defended him from the violence of his associates; but he was continually plunged into new difficulties by his own intolerance, and the jealousy of the monks, arising from the reputation which he had acquired as a preacher on his visits to the principal cities of Italy. His situation was not improved by his removal to Venice, where, in 1556, he was appointed superintendent of the Franciscan school, and in 1557, inquisitor-general. He discharged these offices with great strictness, and not without some danger; for the abhorrence in which the Venetians held the inquisition compelled him several times to flee from the city. In 1560, he gladly returned to Rome, where the pope made him a counsellor of the holy office (the inquisition), and professor in the university; and his order, at the suggestion of Capri, chose him their procurator-general. He attended the papal legate to Spain, in 1565, as the theologian of the embassy. Here he became acquainted with the policy of the Spanish court, and, by his sermons, obtained the esteem of Philip II. and his nobles. The cardinal of Alessandria being made pope, in 1566, under the name of Pius V, elevated his old friend Peretti to the rank of vicar-general of the Franciscans, bishop of St Agata de' Goti, and father confessor to the pope. Peretti now laboured to repress the disorders which had arisen among the Franciscans, and to improve by pastoral letters the morals of the clergy of his diocese, which he never visited but once: moreover, he generously pardoned his former enemies. In 1570, he was made a cardinal, and assumed the name of *Montalto*, because cardinals of low birth are accustomed to exchange their family name for the name of their native place. Well acquainted with the policy of his colleagues, he believed the surest way to gain the triple crown—the great object of his ambition—was to pursue a course of conduct which should not awaken the jealousy of the other cardinals. Till then, violent, ambitious, active, and strong in body, he seemed to have adopted with the purple all the opposite qualities. His influence over Pius V. he used with moderation, and after his death, avoided connecting himself with any party in the conclave. Under Gregory XIII. he withdrew almost wholly from the court, and took part, as he pretended, very reluctantly in the improvement of the calendar, and the important political negotiations with Russia and England, in which his wisdom and experience could not be dispensed with. He treated every one with kindness and affability, and suffered injuries without seeking for revenge. Instead of permitting his poor relations to reap much advantage from his advancement, he expended his income (which was, indeed, rather small) in pious establishments, acts of benevolence, and literary enterprises, erected new monuments to forgotten saints, fed the poor, superintended an edition of the works of St Ambrose, and presented the appearance of a sick and broken-down old man, who loved, above all things else, tranquillity and devotion. But, in the confessor's chair, where the licentious nobles confided to him their secrets, and by means of the members of his household, he secretly collected a fund of accurate information in regard to the views and characters of the most distinguished Romans; and, under the mask of pious simplicity and feeble old age, prepared himself for that high destiny for which he was born. He had deceived all about him as to his true character; and on the death of Gregory XIII., in 1585, the majority of the cardinals were convinced that a pope like Montalto would be most easily managed. In consequence of this opinion, he was chosen to the popedom almost unanimously, and took the title of Sixtus V. As soon as he was sure of his election, he threw down, in the electoral chapel, the staff on which he had hitherto leaned, and came forward, to the astonishment of all, with a dignity and firmness indicative of that independence of spirit which he maintained during his five years' administration. At the very beginning of his reign, he showed the Romans, by the speedy execution of several criminals, how he intended to exercise justice, which had slept under his predecessors. Offences against the public peace or safety he punished generally with death, regardless of all intercession. He removed unfaithful judges, freed the States of the Church from robbers, and laboured energetically to restore the public tranquillity. But he was a terror only to the wicked; oppressed innocence found in him support; the poor were fed from his storehouses, and thousands of idle hands employed in the erection of edifices, which he constructed with surprising rapidity, for the ornament of Rome. The aqueduct, called *aqua felice*, the lofty obelisk in front of St Peter's church, and the triumphal pillars of Trajan and Marcus Aurelius, which he erected at a great expense, the noble dome of St Peter's, and the hospital on the Tiber, are monuments of his zeal for the splendour and welfare of his capital. He gained lasting honour by founding the Vatican library, for which he erected a magnificent building, with a printing-office, for the publication solely of the works of ecclesiastical authors. From this Vatican press proceeded his complete edition of the works of St Ambrose, and the Vulgate, which he revised. At Fermo, in the States of the Church, he founded a university; at Rome, the college of St Bonaventura, for young Franciscans; and at Bologna, the college of Montalto. His chief attention, however, was directed to the government of the ecclesiastical states, and the care of its foreign relations. He endeavoured to increase the trade and industry of Rome by abolishing heavy imposts, and establishing manufactures of silk and of wool for the employment of the poor. He improved the departments of the police and the finances, and accumulated a fund of three millions *scudi*, which he deposited in the castle of St Angelo, to serve as a fund for the public wants. This was acquired by the increase and rigid collection of the public taxes, the confiscation of the property of criminals, the profits of new pawnhouses (*monti*), by an advance on the price of venal offices, and the sale of many which had never before been subjects of traffic, but principally by rigid economy. The expenses of his court he limited as much as possible. Although he was generous to his former patrons, he was moderate in his benefactions to his relatives. For the administration of the affairs of church and state, he instituted fifteen congregations, composed of cardinals and other officers. The most remarkable are the congregations for the navy, which consisted of ten galleys, for the protection of the coast, for the complaints of the people, for the continuation of the catalogue of prohibited books, for carrying into effect, and explaining, the decrees of the council of Trent, for sacred rites and ceremonies, and for the administration of justice. (See *Curia.*) Besides the establishment of several festivals in honour of saints, the reign of Sixtus V. was marked by the limitation of the number of cardinals to seventy, and the obligation imposed on all Catholic bishops to visit Rome once in every three, five, or ten years, according to the distance of their sees, on pain of losing their offices—an ordinance which, though never strictly enforced, was calculated to confirm the old papal claims, and to bind the bishops more firmly to the head of the church. In theological controversies, Sixtus maintained a wise neutrality, and enjoined silence on the Jesuits, whom he never loved, when they contended with the university of Louvain. But in the political events of his time, he took a more active share. The project of restoring Germany to its former dependence on the papal see failed; but Sixtus excited the emperor Rodolph II. to a violent persecution of heretics. Two Protestant sovereigns, Henry of Navarre, and Elizabeth, queen of England, he excommunicated, though it would seem only for the sake of appearances, since he sincerely esteemed them both for their intellectual vigour, and would never seriously support Spain against Henry, because he deemed the views of Philip II. dangerous. He, however, aided this monarch with funds to equip the armada against England, but at the same time gave the British envoys an opportunity to see that he would not disapprove of a more energetic participation in the war for the independence of the Netherlands, in order to curtail the Spanish power. After the assassination of the Guises, he excommunicated Henry III., yet without giving direct support to the league. But while Sixtus V. conducted with moderation towards all the princes of his time, he weakened one by means of another, and made them all dependent on himself. His mind was occupied with extensive plans for the enlargement of his temporal and spiritual power. He always called Naples his kingdom, and made the Spanish viceroy feel his importance on all occasions. It was his design to subject Russia to his dominion through Stephen Bathori, king of Poland, and Egypt through the grand-duke of Tuscany; but the death of these two princes frustrated his bold projects. By his numerous spies, not only his special informers, who were royally paid, but also the father confessors of the Roman Catholic church, he gained a knowledge of every thing that was passing. Hence he was always prepared for emergencies, and consulted with the cardinals only for the sake of appearance. His thorough knowledge of business, and the superiority of his bold, able and lofty mind, filled everyone that approached him with respect and admiration. He was famous for humorous remarks and pithy repartees, by which he often overcame opposition and effected his objects. Plain in his exterior, and free from anxiety about a nice etiquette, he maintained his princely dignity by a majestic demeanour and strict consistency. The sternness of his deportment was rarely interrupted by displays of good nature, though this sometimes happened, as in his marks of favour to his old acquaintances of the time of his humble condition. He was reserved towards those around him, and firm even to obstinacy in all that he undertook. Though politics occupied the greatest share of his attention, yet he was wanting in nothing which became the head of the church. In no case did he abuse his power to gratify personal feelings of revenge. Though never-beloved, he was universally feared. After his death, which happened August 24, 1590, the populace, irritated by the pressure of taxes, overturned the statues which the senate had erected to him in the capitol. The conjecture that his death was hastened by poison, at the instigation of the Spanish court, which he had offended by his coldness towards the league, and by the manifestation of favour towards Henry IV., is not supported by sufficient evidence. All that could be effected in so few years, by commanding talents and force of character, with the feeble means which were left to the papal see by the reformation, Sixtus accomplished: and he was the last head of the Roman Catholic church whom kings have had reason to fear.

SKALDS. See *Scalds*.

SKATING; one of the finest gymnastic exercises, by which man, as Klopstock says, "like the Homeric gods, strides with winged feet over the sea, transmuted into solid ground." It is one of the healthiest exercises, bringing the body into action by a great variety of motions. The best skaters are found in Holland (where both men and women often skate to market, and not unfrequently ladies practise the exercise), Germany, and Russia. Skating is mentioned in the Edda, written 800 years ago, in which the god Uller is represented as distinguished by his beauty, arrows, and skates. Klopstock has sung its praises in several odes. Göthe, Herder, and other German poets, have celebrated it. See Salzmann's *Gymnastics*, and Garcin's *Le vrai Patineur*; &c.

SKELETON (from σκελλω, I dry) is the assemblage and combination of all the bones in the animal body, with a few exceptions, as the bone of the tongue *(os hyoides)*, and certain other bones in certain animals. Red-blooded animals only possess a true skeleton, to which their muscles are attached, and on which the general form, as well as the greater or less flexibility of the body, depends. The skeleton is of the greatest importance, both in comparative anatomy and in the animal mechanism.—See the five first chapters of Blumenbach's *Comparative Anatomy, with Notes by Lawrence* (2d ed., by W. Coulson, London, 1827), and the numbers on *Animal Mechanism* in the *Library of Useful Knowledge;* also Arnott's *Elements of Physics*. See, also, Cuvier's *Lecons d'Anatomie Comparée*.

SKELTON, JOHN; an English poet, born towards the latter part of the fifteenth century, at Oxford, where, about 1489, he received the laureateship as a degree. (See *Poet Laureate*.) He took orders in 1498, and was remarkable for his buffooneries in the pulpit. There were three objects at which he delighted to aim his satire—the mendicant friars, Lily, the grammarian, and cardinal Wolsey. His attacks on Wolsey at length roused the resentment of that prelate, and an order being issued for his apprehension, he took refuge in the sanctuary at Westminster, where the abbot afforded him protection until his death, June 21, 1529, not long before the fall of Wolsey. His works, consisting of comedies, satires, short poems, were published in 1512, and are contained in Chalmers's edition of the English poets, with the exception of a few, omitted on account of their coarseness. The whole are enumerated by Ritson.

SKETCHES. See *Drawing*.

SKIDDAW; one of the highest mountains of England, in Cumberland, distinguished for its grand and romantic scenery, as well as for the lakes in its different hollows and near its base; height 3022 feet. It is three miles north of Keswick.

SKIFF. See *Boat*.

SKIN; the porous organ which forms the external covering of the body, and which, besides its use as a covering, performs the functions of perspiration and absorption. It consists of two separate organs—the *epidermis* or scarf-skin, and the *cutis* or proper skin; between lies the *rete mucosum*. The epidermis may be separated from the cutis by soaking in water. It is raised by the application of blisters, and, in some diseases of the skin, peels off of itself. The complexion of negroes is owing to the black colour of the rete mucosum. The fat keeps the epidermis soft, and is diminished in quantity in those diseases in which the skin becomes rough. The epidermis protects the terminations of the nerves, whose sensibilities would otherwise soon become blunted. The surface of the skin is marked with very regular furrows, running parallel with each other, in which are the pores, which exhale an attenuated vapour. The proper skin forms a compact and thick membrane, which envelopes the muscles and fat. On being boiled in water, it yields a quantity of gelatinous matter, which is used for making glue.

SKORODITE is a rare mineral, found in Saxony, Carinthia and Cornwall. It presents itself in small crystals, derived from a right rhombic prism of 120°, but which are terminated at each extremity by foursided pyramids. It is also found massive, and in botryoidal masses, composed of crystals, diverging from a common centre. Its colours are various shades of green; lustre vitreous; streak white; rather brittle; hardness about that of fluor. Before the blow-pipe, it emits an arsenical odour, and melts into a reddish-brown scoria, which acts upon the magnetic needle. It consists of

Arsenious acid,	31·40
Sulphuric acid,	1·54
Water,	18·00
Protoxide of iron, with magnesia, lime, and manganese,	47·80

SKULL (*cranium*); the bony box which contains the brain. It forms the forehead, and every part of the head, except the face. It consists of eight bones.—See the treatise on *Animal Mechanism* in the *Library of Useful Knowledge*, and Blumenbach's *Manual of Comparative Anatomy* (translated into English, 2d ed., by W. Coulson, London, 1827). See, also, the article *Phrenology*.

SKULL-CAP (*scutellaria*); a genus of labiate plants. They are herbaceous, with opposite leaves; and the flowers, also, opposite, and placed in the axils of the superior leaves, sometimes forming terminal spikes, from the diminished size of these leaves. The calyx is entire; the upper lip vaulted, closing like a lid after the flowering is over. When inverted, the calyx presents the figure of a helmet with the visor raised. The flowers are much longer than the calyx, and usually of a blue colour. The *S. lateriflora* has been much celebrated as a remedy for hydrophobia; but its pretensions seem to be destitute of the slightest foundation. The stem divides from the base into numerous opposite weak branches, provided with oval acute petiolate and toothed leaves; the flowers are small and blue, situated at the summits of the branches, and usually turned to one side, by which character it is readily distinguished from the other species.

SKUNK (*mephitis putorius*); a carnivorous quadruped, allied to the weasel and badger, inhabiting most parts of North America, and celebrated for the intolerable stifling stench which it discharges when threatened with danger, and which is its defence against its enemies. At other times, the animal is not at all unpleasant, and, if killed while unsuspicious of danger, the offending glands being carefully removed, the flesh may be eaten, and is said to be well flavoured; in fact, it is frequently made use of, and is much relished by the Indians and hunters. The skunk is about as large as a cat. The dentition differs but slightly from that of the weasels. The upper lip is furnished with long whiskers; the fur is long and thick, composed of silky and woolly hairs intermixed; the colour is white and blackish-brown, in large masses, but the respective distribution of these tints varies so greatly that no two individuals are to be found precisely alike. A second species inhabits South America, and perhaps there are others. The genus is exclusively American. The skunk is a nocturnal animal, and leaves its burrow in the twilight in search of small quadrupeds, and the young and eggs of birds, on which it feeds. When it gains access to the poultry yard, it often does much mischief. The skunk seems to be perfectly aware of its powers of defence, and takes no pains to avoid man or other animals; it seems so unsuspicious of danger as to invite attack, and strangers often pay the price of experience. Should a dog attempt to seize him, he is utterly discomfited, and runs away howling, and endeavouring to thrust his nose in the ground. The offensive fluid is ejected to a considerable distance, and is very acrimonious; the smallest drop is sufficient to render clothes detestable to the wearer and his companions for a great length of time, and without any perceptible diminution in intensity. Washing, smoking, baking, burying, in short, every process seems to be ineffectual for its removal.

SKUNK-CABBAGE (*symplocarpus fœtida*). Among the earliest of the American spring flowers, often, indeed, before them all, appear the large, thick, purplish and spotted spathes of this plant. The leaves are later in making their appearance, are very large, and bear no inconsiderable resemblance to those of the cabbage. The whole plant has a very strong odour, singularly like that of the skunk, but not comparable to it in intensity. The skunk-cabbage is unknown in the Southern States. It belongs to the natural family *aroideæ*.

SKYE. See *Hebrides*.

SLANDER. See *Libel*.

SLATE. *Clay slate* (*Thon Schiefer* of the Germans) and *argillite*. By the early English geologists, this rock was called *argillaceous schistus*, and it is denominated *phyllade* by the modern French writers. The structure of slate is eminently foliated or schistose, separating, in some of its varieties (as in the roofing slate, for example), into laminæ as thin as pasteboard. Prevailing colour gray of various shades: it is also bluish, reddish, and greenish; opaque and dull; yields to the knife, but varies considerably, as respects hardness, in its different varieties; fissile; specific gravity 2·7. When moistened, it emits an argillaceous odour. The common roofing slate appears to consist very nearly of the following ingredients:—

Silex,	48·00
Alumine,	25·50
Oxide of iron,	11·30
Potash,	4·70
Magnesia,	1·60
Carbon,	·30
Water,	7·60

But slate varies exceedingly in its chemical constitution, as might very naturally be expected, since it is a mixed rock, consisting of very minute individuals of quartz, feldspar, and mica, to which are occasionally added scales of talc, and particles of carbonaceous matter. Those slates which contain a large proportion of quartz, are called *whet-slate*. In these, the mechanical composition is impalpable, and the fracture splintery *in the small*, though slaty *in the large*. They are translucent, and of a greenish-white colour. When magnesia enters largely into the composition of slate rocks, they are distinguished by their green colour, and by their unctuous feel. These are the slates which, for the most part, have talc as an ingredient, and are often called *talc*, or *chlorite* slates. When carbonaceous matter prevails to the proportion of eight or ten per cent., the slate soils more or less, and even writes. It is then called *drawing slate*, or *black chalk*. This variety is softer than the preceding kinds, and sometimes possesses the property of adhering to the tongue. Its specific gravity is only 2·18. A variety of slate called *adhesive* slate, from its property of adhering to the tongue, deserves to be mentioned, although it is very remote in its properties from the roofing slate, which may be considered as the type of the present rock. Fracture in the large slaty; in the fine earthy; colour light gray; specific gravity 2·08; easily broken; absorbs water with a hissing noise. It consists of

Silex,	62·50
Magnesia,	8·00
Oxide of iron,	4·00
Alumine.	0·25
Carbon,	0·75
Water,	22·00

Still another argillaceous aggregate, which has been treated of along with the slates, is the *polishing* slate. It differs from adhesive slate in not adhering forcibly to the tongue, in being very soft, and in having a low specific gravity, namely, 0·50 to 0·60.

Slate, in varieties approaching roofing slate, occurs in vast strata in primitive countries, and is often observed graduating into mica slate. Wherever its strata are contiguous to granite, gneiss, or mica slate, it is noticeable that it has a more shining lustre: as it recedes, however, from the primary rocks, its texture is more earthy. It is commonly divided into beds of various degrees of thickness, which are generally much elevated; and, from the natural divisions of the rock, they often form peaked and serrated mountains. The cleavage of these beds is in a transverse direction, making with the slope of the bed an angle of about 60°. The finest variety which is used for roof slate seldom forms entire mountains, but is generally imbedded in slate rocks of a coarser kind. Those kinds are selected for the covering of buildings which have the smoothest surface, and split into the thinnest plates. Quarries of slate of this description are worked extensively in Westmoreland, Yorkshire, Leicestershire, North Wales, Cornwall, and Devonshire. *Whet* slate is found in beds between strata of common slate in transition formations. The use of this variety for hones and whet-stones is well known. The most valuable kinds come from Sonnenberg, in Meiningen, and from Saalfeld. They are likewise brought from the Levant. The drawing slate, which is used as a drawing material, comes from Italy, Spain, and Bayreuth in Thuringia. Adhesive slate occurs only at Menil, Montant, and Montmartre, near Paris. Polishing slate, which is believed to have been formed from the ashes of burnt coal, occurs at Planitz, near Zwickau, and near Bilin, in Bohemia. It is used as a polisher of metals.

SLATE CLAY. See *Clay*.

SLAVE LAKE, or ATHAPESCO; in North America; lat. 61° 20′ N.; lon. 115° W. It is about 200 miles in length, and fifty in breadth.

SLAVERY. The history of mankind shows that the empire of force gives way but slowly to the empire of reason. It is one of the most interesting and useful labours of the historian, though not the most flattering to human pride, to trace the steps by which this change takes place, as exemplified, for instance, in the history of political institutions, the relation of the wife to the husband,* and of the servant to the master. At present, we shall confine ourselves to the institution of domestic slavery. This originates in the power of the strong over the weak. Man, in the infancy of society, uses his physical power according to his own pleasure. In the case of his wife and children, natural affection restrains him, in a great measure, from the abuse of his power. But there is another class of dependents, his conduct towards whom is not restrained by such feelings—his slaves. Slaves were probably at first captives. It being considered that the victor had a right over the life of the vanquished, the latter was looked upon as altogether at the disposal of the former, who, if he chose to spare him, might subject him to any restraint that he saw fit. The principle on which slavery was thus made to rest, was only adapted to the rudest condition of society, and is wholly inconsistent with the present state of morals and religion. We carry on wars, indeed, for the attainment of specific objects, and, as far as the destruction of human life is required for the attainment of those objects, we regard it as a necessary evil; but we do not consider that either individuals or governments have any right to dispose of the lives of the vanquished; nor are even criminals allowed to be made slaves in the full sense of the word. Philosophy allows of no obligation from one man to another without an equivalent; and the idea of making a man a slave, that is, of subjecting all that he has and is to the disposal of a master, who is not bound, on his part, to render any thing in return, is at war with the first principles of bodies politic. Slavery can never be a legal relation. It rests entirely on force. The slave, being treated as property, and not allowed legal rights, cannot be under legal obligations. Slavery is, also, inconsistent with the moral nature of man. Each man has an individual worth, significance, and responsibility, is bound to the work of self-improvement, and to labour in a sphere for which his capacity is adapted. To give up his individual liberty, is to disqualify himself for fulfilling the great objects of his being. Hence political societies, which have made a considerable degree of advancement, do not allow any one to resign his liberty, any more than his life, to the pleasure of another. In fact, the great object of political institutions in civilized nations, is to enable man to fulfil, most perfectly, the ends of his *individual* being. Christianity, moreover, which enjoins us, while we remain in this world, to regulate our conduct with reference to a better, lays down the doctrine of brotherhood and mutual love, of "doing as we would be done by," as one of its fundamental maxims, which is wholly opposed to the idea of one man's becoming the property of another. These two principles of mutual obligation, and the worth of the individual, were beyond the comprehension of the states of antiquity, but are now at the basis of morals, politics, and religion. In the most cultivated states of antiquity, the individual, as such, was little regarded. He was considered only as a citizen of a body politic. In fact, whilst we found the whole idea of the state on the prior idea of the individual, the state with them was the primitive idea, from which the individual received his significance and worth, for they did not consider the individual as a being placed on earth for the purpose of self-improvement, to promote which political societies are formed. To foreigners they gave the names of *barbarians*, *enemies*, *slaves*. Aristotle, one of the most powerful minds of antiquity, says, in his politics, "With barbarians, the family consists of male and female slaves; but to the Greeks belongs dominion over the barbarians, because the former have the understanding requisite to rule, the latter the body only to obey." He calls the slave a living instrument, as the instrument is an inanimate slave. Yet he adds, "For the slave, considered simply as such, no friendship can be entertained; but it may be felt for him, as he is a man." We perceive here the nobleness of his nature struggling with the limited ideas of his age. We find several traces of a similar feeling among men of elevated character. Plutarch, for instance in his life of Numa), expresses his belief in an early golden age, when there were neither masters nor slaves. Notwithstanding the injustice of the state of slavery, yet, when we come to the question of its abolition, the subject is often attended with numerous difficulties, of which the dangers that may accrue from the removal of restraint from men wholly unaccustomed to self-control, are among the chief; but, on the other hand, cupidity and prejudice often unnecessarily magnify the real difficulties. The abolition of slavery, and its kindred institution, villenage, and the improvement in the condition of women, are among the most important services which Western Europe has rendered to the world. The abolition of slavery in Europe was the consequence, and, in its turn, the cause of its civilization; for slavery is the greatest bar to the progress of society. Look at Asia, so far, at one time, in advance of Europe, and now so far behind it, struggling under the burden of slavery. It is a melancholy reflection that Europe re-established in her colonies the hateful institution which she had overthrown at home, thereby furnishing another proof that man is capable of committing the most appalling inconsistencies, provided he finds his interest in so doing, and is at a distance from the voice of reproof. We should add, that the villenage which still exists in some parts of Europe, is still more absurd than slavery, because it attempts to treat the human individual as a person and as a thing at the same time, a contradiction which appears, indeed, to some extent in all laws respecting slaves, because the rights of man cannot be altogether overlooked.

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* In the article *Marriage*, it is stated that, in almost all original marriage ceremonies, the symbolic expression of buying and selling is to be found.

Slavery having once originated, many circumstances favoured its continuance. From the heads of families who, in the infancy of society in Asia, regarded their domestic dependents in the light of property, as much as they did their flocks, originated the chiefs of the nomadic tribes, who became conquerors or priests; and from these two classes all the political institutions in Asia seem to have sprung. The conquerors established absolute despotisms, in which the persons and property of the subjects were completely at the disposal of the ruler. This is political slavery, i. e. the total absence of legal relations (i. e. mutual obligation) between sovereign and subject. Rules may, indeed, sometimes be laid down by the sovereign for the regulation of these relations; but the continuance of them depends entirely on his pleasure.[*] This state of political slavery furnished a great support to domestic slavery by the analogy between the rule of a king and that of a head of a family. The priests secured their power by the establishment of castes, by which society was made to form a sort of pyramid, at the top of which the priests strove to place themselves. The Greeks and Romans, by freeing themselves from the debasing institution of castes, made a great advance in civilization; but they could not elevate themselves to the idea of liberty in the domestic connexions, which lies at the basis of the political institutions of all modern civilized nations, so that the social institutions of our times are founded upon principles essentially differing from those of the ancients—a circumstance which is often overlooked. The circumscribed views of the ancients, respecting the rights and relations of men, was the reason why, in spite of their progress in civilization, they continued to treat the prisoner of war as a slave. Had they considered their enemies as equals, and not as mere barbarians, this custom would probably have been sooner abolished. If Christian nations, at later periods, also reduced prisoners of war, in some cases, to slavery,—as the Spaniards did with the Indians in America,—it was owing to the contempt which they felt for them as heathens. This made the Spaniards look upon the Indians much in the same light as the Romans did upon barbarians. Fanaticism varnished over this measure, and the disciples of the religion of love and truth pretended that the savages could be more easily converted to Christianity in slavery than in freedom.[†] It was this idea, also, which, as Montesquieu states, induced his most Christian majesty, Louis XIII., to sign a law, declaring the negroes in his colonies slaves. The true motive, however, in both cases, undoubtedly was cupidity; and this motive, in other instances, is proclaimed without disguise.[‡] The Europeans and their descendants, in fact, have been pre-eminent for cupidity. Whether their greater civilization has made them more sensible of the value of money, or their superior intellectual cultivation has furnished them with more means of satisfying the universal thirst for acquisition, or whether they are naturally more prone than other races to avarice and the vices which flow from it, they are notorious for the violation of every moral and religious principle, and the commission of the most enormous inconsistencies and cruelties in the gratification of this passion. History can show no instances of such prolonged and cold-blooded cruelty as is presented in the nefarious slave-trade of the Europeans and their descendants. A historical account of the various forms of slavery in different nations, and particularly a sketch of the laws respecting slavery that have existed, and still exist, among the more civilized nations, would be highly interesting. but would far exceed our limits.

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[*] Here we may be allowed a remark respecting the difference of absolute governments in Europe and Asia. Even the supporters of the divine right of kings in Europe, who maintain that a monarch is answerable to none but God, nevertheless admit that he is bound to rule conscientiously, and to administer justice; whilst the despotism of Asia rests simply on the idea of power, without the supposition of a higher origin. Hence the vizier, who murders the reigning monarch and his family, and usurps the government, is looked upon as the lawful master of the lives of his subjects, as much as his predecessor was, while he possesses power to enforce his will.

[†] Arguments readily accommodate themselves to circumstances. At that time, men were to be enslaved for the good of their souls; and now, the security of the masters. as well as the happiness of the slaves themselves, require that they should be kept from all means of moral and intellectual improvement.

[‡] By an act passed in Virginia in the year 1679, it was, for the better encouragement of soldiers, declared, that what Indian prisoners should be taken in a war in which the colony was then engaged, should be free purchase to the soldiers taking them. In 1682, it was declared, that all servants brought into this country (Virginia), by sea or land, not being Christians, whether negroes, Moors, Mulattoes or Indians (except Turks and Moors in amity with Great Britain), and all Indians which should thereafter be sold by neighbouring Indians, or any other trafficking with us, as slaves, should be slaves to all intents and purposes. Per judge Tucker, in the case of Hudgins v. Wright. (*Henning and Munsford's Reports*, 139.)

The effects of slavery have always been most injurious to the nations which have permitted it. It is so directly opposed to the nature of man (which can as little endure absolute power as absolute subjection, without greatly degenerating), that it has always had a palsying influence on the industry and morality both of the masters and the slaves. The human mind cannot thrive without freedom. Among the evils which have originated from slavery are, the use of eunuchs, the shows of gladiators, the encouragement of the grossest sensuality and indolence, and an unparalleled disregard of human life, the corrupt character of the freedmen, and the outrages of the slave when he breaks his chains—from the horrible war in Italy, 70 B. C. (see *Spartacus*), down to the atrocities of the Haytian revolution, and the bloody insurrections on the island of Barbadoes in 1816, and several more recent ones. These are a few of the consequences of slavery, more or less conspicuous wherever it has existed, but particularly so in ancient Rome, of whose ruin slavery was the chief and most direct cause. In Athens, slaves were treated with considerable mildness; in Sparta and Rome, with harshness. By the Roman law, if a master was killed, all the slaves who were under the same roof, or near enough to be able to hear his cry, were to be put to death. The right of the master over the life of the slave was not abolished till the time of the Antonines, in the second century A. D. If slaves were ill treated by a third person, the Aquilian law only allowed the owner of the slave to demand indemnification for the damage. In Athens, however, the perpetrator was punished sometimes even with death. Modern legislation has, in many cases, sought to protect slaves against abuses on the part of their masters, and to afford them facilities for manumission, but, as yet, with very imperfect success; nor can legislation ever protect effectually a being who is the property of another. Many legal investigations, of late years, respecting the treatment of slaves, have brought to light atrocities which most persons would have thought impossible in this age, and which would make many believe that the superiority of our race consists less in moral advancement than in refinement of manners. Examine, for instance, the facts disclosed in the proceedings instituted against Picton, the British governor of Trinidad. The laws of the Mohammedans respecting slaves, in their general spirit, and compared to the laws respecting free persons, are more humane than those enacted by Christians; one cause of which may be, that a part of their slaves are of the same colour with themselves, whilst the slaves of Christian nations are all of a different colour from their masters; and the colour itself, from association, has become an object of disgust, peculiarly to the descendants of the English race in the United States of America. The laws respecting slaves are, generally speaking, among Christians, milder in monarchical governments than in the slave-holding republics of the United States. Thus manumission, under the Spanish and English laws, is much easier than under those of that Union. Some of the former governments allow the slave to accumulate property, by which he may eventually purchase his freedom. This is the case in the Spanish colonies; but no such right is recognised by law in the United States. One reason of this difference undoubtedly is, that in monarchical states the government is distinct both from the master and the slave, whilst in republics, the masters (the interested party) are themselves the legislators, and, of course, are guided principally by their interest in the enactment of laws: another reason is, that republics in which the executive department is intrusted with comparatively little power, must be more attentive to provide for their safety, by severe laws, than monarchical states, in which the executive has a strong military force at its disposal. Thus, whilst several English laws encourage the instruction of slaves in reading, arithmetic, and the elementary truths of religion, several slave-holding states of America prohibit the teaching them reading and writing, under severe penalties. The evil of slavery was entailed on the United States by the measures of the mother country, during the period of colonial dependence. The colonies made repeated efforts to prevent the importation of slaves, but could not obtain the consent of the English government.—See Walsh's *Appeal from the Judgments of Great Britain* (Philadelphia, 1819). In the ninth section of that work the subject is fully discussed. The constitution of the United States acknowledges slavery, by the provision that "Representatives and direct taxes shall be apportioned among the several states which may be included within this Union, according to their respective numbers, which shall be determined by adding to the whole number of free persons—including those bound to service for a term of years, and excluding Indians not taxed—three fifths of all other persons." Previous to the admission of Missouri into the Union, in 1820, a warm contest took place in congress, respecting the permission of slavery in the new state. It was finally admitted without any restriction in regard to this point.

A traffic in negroes was carried on from the beginning of the sixteenth century, by the Portuguese, and, after them, by all the Christian colonial powers, and has been continued to the latest times, in consequence of the colonial system of the European powers, and the idea that the colonial produce cannot be raised without slaves, with an atrocity at which nature revolts, and which could never have reached the height that it did, if the colour of the slave had not given rise to the idea of his being by nature a degraded being. In the year 1503, slaves were carried from the Portuguese possessions in Africa to the Spanish colonies in America.* It has been generally stated, that Bartolomeo de las Casas proposed to cardinal Ximenes the regular importation of negroes, from charity towards the feeble aborigines of South America, who were treated by the Spaniards as mere beasts of burthen. But this story has been contradicted by the abbé Grégoire, in his *Apologie de B. de las Casas*, in the *Mémoires* of the French institute; also by the writer of the article *Casas*, in the *Biographie Uni-*

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* It is stated that, in 1434, a Portuguese captain, named Alonzo Gonzales, landed in Guinea, and carried away some coloured lads, whom he sold advantageously to Moorish families settled in the south of Spain. Six years after, he committed a similar robbery, and many merchants imitated the practice, and built a fort to protect the traffic.

verselle, after an examination of all the Spanish and Portuguese historians of that period. This charge, he says, rests solely on the authority of Herrera, an elegant but inaccurate author. The Spanish government, the French under Louis XIII., and the English under queen Elizabeth, formally permitted this traffic, because the negroes were represented as delivered by it from misery or death. Yet Elizabeth declared herself against the violences used. In Spain, the slave-trade was first regularly established in 1517. Charles V. granted to Lebresa, his favourite, the exclusive privilege of importing annually 4000 slaves, which the latter sold to the Genoese. These received the black slaves from the Portuguese, in whose hands, properly speaking, the traffic was. Slaves soon came to be introduced much more extensively into the plantation colonies than into the mining colonies. And thus the slavery of the negroes became, unhappily, a part of a political system. It also became a great source of profit to the petty African despots, and gave rise to interminable wars and outrages, which struck at the root of all social ties. The powerful became chiefly occupied with forcing their brethren to the market of Christian Europeans, to barter them for rum and toys. When therefore, in consequence of the French revolution, the demand for this human merchandise had lessened, the king of Dahomy, on the Slave Coast, sent, in 1786, an embassy, consisting of his brother and son, to Lisbon, for the purpose of reviving this traffic, and concluding a treaty with Portugal against the other European powers. The most important markets for slaves in Africa were Bonny and Calabar, on the coast of Guinea; and they still remain among the principal. Here the slaves who came from the interior were and are exchanged for rum, brandy, toys, iron, salt, &c.; and the number of these beings who have been thus torn from their country during the last three centuries, is calculated to amount to above forty millions. It is estimated that at least from fifteen to twenty per cent. die on the passage. The sufferings of the slaves during the passage are horrible; and the only restraint, generally speaking, on the cruelty of the traders, is such as arises from motives of interest; so that, when it interferes with humanity (for instance, if the slave labours under an infectious disease), the latter is entirely overlooked, and murder is not unfrequently committed. Since the prohibition of the slave-trade by so many nations, and the great efforts which have been made for the capture of the slave-ships, though the extent of the trade may be diminished, yet the cruelty with which it is carried on is often increased, because the slave-trader, being obliged to guard against capture by the men-of-war who are watching his movements, and, altogether, to carry on his traffic by stealth, subjects the slaves to many restraints for the purposes of concealment, which he did not find necessary while the slave-trade was legal. Notwithstanding all that has been done for its abolition, a contraband trade in slaves is still carried on to a frightful extent, and they are still imported into Cuba and many other West India islands, frequently, as is asserted, by the connivance of the public authorities. As a specimen of the cruelties committed in this nefarious trade, we will give the account of a recent traveller, whose statements are corroborated by many other authorities.*

The first persons who liberated their slaves, and laboured to effect the abolition of the slave-trade, were some Quakers in England and North America, particularly since 1727. In 1751, the Quakers entirely abolished it among themselves. Granville Sharp, in 1772, effected the acknowledgment, by

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* Mr R. Walsh, in his Notices of Brazil in 1823 and 1829 (London, 1830), says, in describing a slave-ship, examined by the British man-of-war, in which he returned from Brazil, in May, 1829, "She had taken in, on the coast of Africa, 336 males and 226 females, making in all 562, and had been out seventeen days during which she had thrown overboard fifty-five. The slaves were all enclosed under grated hatchways, between decks. The space was so low, that they sat between each other's legs, and stowed so close together, that there was no possibility of their lying down, or at all changing their position, by night or day. As they belonged to, and were shipped on account of, different individuals, they were all branded, like sheep with the owners' marks, of different forms. These were impressed under their breasts, or on their arms, and, as the mate informed me, with perfect indifference, "*queimados pelo ferro quento*—burnt with red-hot iron." Over the hatchway stood a ferocious looking fellow, with a scourge of many twisted thongs in his hand, who was the slave-driver of the ship; and whenever he heard the slightest noise below, he shook it over them, and seemed eager to exercise it. As soon as the poor creatures saw us looking down at them, their dark and melancholy visages brightened up. They perceived something of sympathy and kindness in our looks, which they had not been accustomed to, and feeling, instinctively, that we were friends, they immediately began to shout and clap their hands. One or two had picked up a few Portuguese words, and cried out, "*Viva! viva!*" The women were particularly excited. They all held up their arms; and when we bent down and shook hands with them, they could not contain their delight; they endeavoured to scramble upon their knees, stretching up to kiss our hands; and we understood that they knew we were come to liberate them. Some, however, hung down their heads in apparently hopeless dejection; some were greatly emaciated, and some, particularly children, seemed dying. But the circumstance which struck us most forcibly, was, how it was possible for such a number of human beings to exist, packed up and wedged together as tight as they could cram, in low cells, three feet high, the greater part of which, except that immediately under the grated hatchways, was shut out from light or air, and this when the thermometer, exposed to the open sky, was standing in the shade, on our deck, at 89°. The space between decks was divided into two compartments, three feet three inches high; the size of one was sixteen feet by eighteen, and of the other forty by twenty-one: into the first were crammed the women and girls; into the second, the men and boys: 226 fellow creatures were thus thrust into one space 288 feet square, and 336 into another space 800 feet square, giving to the whole an average of twenty-three inches, and to each of the women not more than thirteen inches, though many of them were pregnant. We also found manacles and fetters of different kinds; but it appears that they had all been taken off before we boarded. The heat of these horrid places was so great, and the odour so offensive, that it was quite impossible to enter them, even had there been room. They were measured, as above, when the slaves had left them. The officers insisted that the poor suffering creatures should be admitted on deck, to get air and water. This was opposed by the mate of the slaver, who, from a feeling that they deserved it, declared they would murder them all. The officers, however, persisted, and the poor beings were all turned up together. It is impossible to conceive the effect of this eruption—507 fellow creatures, of all ages and sexes, some children some adults, some old men and women, all in a state of total nudity, scrambling out together to taste the luxury of a little fresh air and water. They came swarming up, like bees from the aperture of a hive, till the whole deck was crowded to suffocation, from stem to stern; so that it was impossible to imagine where they could all have come from, or how they could all have been stowed away. On looking into the place where they had been crammed, there were found some children next the sides of the ship, in the places most remote for light or air; they were lying nearly in a torpid state, after the rest had turned out. The little creatures seemed indifferent as to life or death; and when they were carried on deck, many of them could not stand. After enjoying, for a short time, the unusual luxury of air some water was brought; it was then that the extent of their sufferings was exposed in a fearful manner. They all rushed like maniacs towards it. No entreaties, or threats, or blows, could restrain them; they shrieked and struggled, and fought with one another, for a drop of this precious liquid, as if they grew rabid at the sight of it. There is nothing which slaves, in the mid-passage, suffer from so much as want of water. It is sometimes usual to take out casks filled with sea-water as ballast, and when the slaves are received on board, to start the casks and refill them with fresh. On one occasion, a ship from Bahia neglected to change the contents of the casks, and on the mid-passage found, to their horror, that they were filled with nothing but salt water. All the slaves on board perished! We could judge of the extent of their sufferings from the afflicting sight we now saw. When the poor creatures were ordered down again, several of them came, and pressed their heads against our knees, with looks of the greatest anguish, at the prospect of returning to the horrid place of suffering below."

The English ship, however, was obliged, though with great reluctance, to release the slaver, as it could not be proved after a strict examination, that he had exceeded the privilege, allowed to Brazilian ships, of procuring slaves south of the line, the English courts, of the principle that the slave who lands in England becomes free. The principle had been earlier adopted in France. In 1783, a petition was addressed to parliament for the abolition of the trade, which Wilberforce eloquently supported. He laboured, at the same time, to aid the cause by his pen. But the soul of all the efforts for the abolition of the slave-trade, was Thomas Clarkson. From early youth, he devoted his whole time and fortune to this object; exposed himself to hatred and outrage, even at the hazard of his life, in Liverpool and Paris; made numerous journeys, and was deterred by no obstacles. He principally contributed to gain over Wilberforce, Pitt and Fox. The subject of the abolition of the slave-trade was introduced into the house of commons in 1788, when Pitt presented a petition against the trade. Many petitions followed, upon which the merchants immediately took the alarm. They calculated that the number of slaves in the West Indies amounted to 410,000, and that, to keep up that number, the annual importation of 10,000 was required; that the English bought in Africa 30,000 annually, and, therefore, could sell 20,000 to other nations; that in the prosecution of this trade, English manufactures to the amount of above £800,000 sterling were exported, and above £1,400,000 in value obtained in return; and that government received £256,000 annually by the slave-tax.* Liverpool and Bristol, which carried on the slave-trade most extensively, resisted its abolition so violently that Wilberforce, Fox, Pitt, and their friends, could effect nothing more than the institution of an inquiry into the trade, and the passage of some provisions for diminishing the hardships of the confinement on ship-board. At length, the house of commons was induced, in 1792, to pass a bill for the abolition of the slave-trade in 1795, by a majority of nineteen; the lords rejected this as well as the bill proposed by Wilberforce, in 1794, for prohibiting the British from selling slaves to other nations. In the meantime, the French national convention, February 4, 1794, had declared all the slaves in the French colonies free. Wilberforce brought in another bill, in 1796, providing that the slave-trade should be abolished for ever after March 1, 1797, and that all persons carrying on the trade after that time, should be transported to Botany bay for fourteen years. Fox and Pitt voted for the immediate abolition; but the bill did not pass. The African society, established by Wilberforce and Clarkson, now redoubled its efforts to convince the public of the horrors of this traffic. The colony at Sierra Leone was founded in consequence of the exertion of this society, whose object was to teach the negroes agriculture and the mechanical arts; and, from 1809, young Africans were instructed in various branches of knowledge in that colony. At length the cause of humanity triumphed. June 10, 1806, Fox moved that the house of commons should declare the slave-trade inconsistent with justice, humanity, and sound policy, and immediately take effective measures for its abolition. Generals Tarleton and Gascoyne opposed the motion in vain. It passed by 114 votes against fifteen. The abolition was resolved upon, and a petition was presented to the king, requesting him to take measures to induce the other powers of Europe and the American states to coöperate with Great Britain in the suppression of this traffic. The famous Abolition Act, as finally settled, passed February 5 and 6, 1807, when Roscoe spoke in favour of it, though he represented Liverpool, which owed a great part of its wealth to this trade. January 1, 1808, was fixed as the time when this trade, on the part of the British, should cease. On this occasion, the British papers contained, almost unanimously, the remark, that it was a melancholy, yet undeniable fact, that king George III., the prince of Wales, and the whole royal family, with the exception of the duke of Gloucester, were opposed to the abolition. Another act, May 4, 1811, provided that all who knowingly participated in the slave-trade should be punished with fourteen years' transportation and hard labour. In 1824, a law for declaring the slave-trade piracy, which had been already done by the United States of America, was proposed by Canning, passed the two houses, and, on March 31, received the royal assent. In Denmark, king Christian VII. in 1794, declared the slave-trade unlawful after January 1, 1804; and Frederic VI promised, at the peace of Tilsit, to prohibit his subjects from taking part in the foreign slave-trade. In France, Napoleon, when first consul, promised the continuance of their liberty to the inhabitants of St Domingo, whilst he praised the inhabitants of Isle de France for not having freed their slaves, and promised that France would never again decree the slavery of the whites by the liberation of the negroes. After the successes of the French on St Domingo, the slave-trade was once more established; and the counsellor of state, Bruix, said, on this occasion, *La liberté de Rome s'entourait d'esclaves. Plus douce parmi nous elle les relègue au loin!* In 1814, lord Castlereagh obtained from Louis XVIII. a promise that France would abolish the slave-trade; but, by the influence of the chamber of commerce at Nantes, this traffic was permitted for five years more. Public opinion obliged lord Castlereagh to press upon the congress of Vienna the adoption of general measures for the abolition of the slave-trade; but all that he could effect was that Spain and Portugal promised to give up the slave-trade north of the line.—See the treaty between England and Portugal, Vienna, January 22, 1815. But a paper was drawn up, and signed by Castlereagh, Wellington, Nesselrode, Löwenhielm, Gomez Labrador, Palmella, Saldanha, Lobo, Humboldt, Metternich and Talleyrand (Vienna, February 8, 1815), stating that the great powers would make arrangements to fix a term for the general abolition of the slave-trade, since public opinion condemned it as a stain on European civilization. February 6, 1815, Portugal provided for the total abolition of the slave-trade on January 21, 1823, and England promised to pay £300,000 as an indemnification to Portuguese subjects. Louis XVIII., by the treaty of Paris, November 20, 1815, consented to its immediate abolition, for which Napoleon had declared himself prepared, in April, 1815. Spain promised, by the treaty of September 30, 1817, to abolish the slave-trade entirely, October 31, 1820, in all the Spanish territories, even south of the line; and Britain, February 9, 1818, paid £400,000 as an indemnification to Spanish subjects. The king of the Netherlands prohibited his subjects from taking part in the slave-trade, after the provisions of the treaty of August 13,

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* Such calculations, in which the extreme human suffering is coolly weighed against pecuniary profit, excite horror; but we should not overlook the influence of habit and circumstances, in accustoming men whose dispositions are, in general, good, to what they would otherwise abhor. The frauds practised in Prussia and some other countries, before 1806, in enlisting of soldiers, were abominable: and violence was not unfrequently used to oblige men to take the oath. See *Soldier*.

1814, had been rendered more precise and extensive by the treaty concluded with Britain, at the Hague, May 4, 1818. Sweden had already done the same, according to the treaty of March 3, 1813.[*] The United States of America engaged, in the treaty of Ghent, December 24, 1814, to do all in their power for the entire suppression of the slave-trade. November 23, 1826, a treaty was concluded, with Brazil, for the abolition of the slave-trade; and it was accordingly prohibited after March, 1830. In spite of these treaties, the illicit slave-trade continued, and, as we have already stated, more cruelly than before. Spanish and French vessels were, and probably are still, the ones chiefly engaged in it. The latter were considered to out-number, much, all the others put together. The British therefore, sent ships of war to Sierra Leone, in 1816, to capture the slave-ships; but they were unable to put a stop to the trade, for the slave-markets in Brazil and Cuba offered powerful temptations to unprincipled men, and some individuals in the United States were willing to provide them with swift vessels, calculated for their disgraceful and worse than piratical traffic.[†] In 1832, France and Britain concluded a treaty, by which the two governments allow each the right of searching the other's ships, under certain circumstances, in the region of the slave-trade; and if the United States should consent to the same arrangements, important consequences might be expected. Still more advantageous, perhaps, would it be if the United States and Spain would conclude such a treaty, so that the vessels of the former power could search the Spanish slave-vessels in the vicinity of Cuba, which at present can be done only by the British.

The evils of slavery we have already touched on in the previous part of this article. The productiveness of slave-labour, as compared with free labour, we cannot speak of at present. It is generally considered far inferior. Some, indeed, have maintained that certain kinds of work—for instance, that required on the rice and sugar plantations—could not be performed without slaves; but this is denied by others, as Bryan Edwards.[‡] The numerous insurrections on the West India islands and in the United States have shown that the abolition of slavery is highly desirable; but the difficulty is, how to bring it about. In the United States, a colonization society has been formed, with the view of exporting as many coloured persons as possible to the colony of Liberia. Virginia has lately made an appropriation, with a provision for its increase, in aid of the colonization society. (See the articles *Colonization Society*, and *Liberia;* also the *Letters on the Colonization Society*, &c., by M. Carey, 1832.) In England, Wilberforce proposed, June 10, 1816, in parliament, that slaves should be treated as British subjects, and that the children born in future should be educated as free persons. These were the views of Burke, Fox, Pitt, Lansdowne, Howick (the present earl Grey), &c.

On the 14th of May, 1833, the whig administration of Earl Grey brought forward a plan for entirely abolishing slavery in the British colonies. The first proposition was, that the slaves, after a probationship or apprenticeship of ten years, in order to prepare them for their liberation, should be emancipated, and that the slave-holders should in compensation, be accommodated with a *loan* of £15,000,000 sterling, to be repaid in such manner and at such rate of interest as should be prescribed by parliament. The term of apprenticeship was afterwards changed from ten to seven years, and the sum of £15,000,000 was raised to £20,000,000, to be distributed, not as a loan, but as a *gift*, among the slave-holders, in order to compensate them for any loss which they might be supposed to suffer by the arrangement. A nobler sacrifice of money to humanity and justice was never before made by any nation. In the supplement to this work we hope to record the final liberation of the slave.

In South America, with the exception of Brazil, slavery has either been abolished or is drawing to a close. In Colombia, slave children born since the revolution, are to be free on reaching their eighteenth year. Bolivar early set free all his slaves. In Mexico, president Guerrero declared all slaves free on September 15, 1829.

For the number of slaves in the various foreign countries where slavery is permitted, we must refer the reader to the articles on these countries. There are at present eleven slave-holding states in the Union, viz. Maryland, Virginia, North and South Carolina, Georgia, Alabama, Mississippi, Louisiana, Tennessee, Kentucky, Missouri. The district of Columbia, and Missouri, Arkansas and Florida territories also contain slaves. The sum total of the slaves in the United States is 2,010,436. Of these, however, 3305 are in the state of Delaware, 2246 in New Jersey, 386 in Pennsylvania, and a few survivors of former times in New York, Connecticut and Rhode Island. The progress of the slave population in the U. States is as follows·

Census of	Slaves.	Total pop.
1790	697,697	3.929,827
1800	896,849	5.305,925
1810	1,191,364	7,289,314
1820	1,538,064	9,638,181
1830	2,010,436	12,856,407

For information on the slavery of the blacks, see Clarkson's *History of the Abolition of the Slave-Trade;* Gregoire *On the Literature of Negroes;* Wadstrom's *Observations on the Slave-Trade; during a voyage in* 1787 *and* 1788 (London, 1789); Falconbridge's *Account of the Slave-Trade on the Coast of Africa* (London, 1788), &c. Some account of slavery among the Greeks and Romans may be found in the works of Reitemeier (History of Slavery in Greece), Walch, Œlrichs and Hunter (On the Roman Slaves), in German. (See also Comte, *Sur la Législation.*)

Slavery of the Whites, in the Barbary states; a stain on the history of the European governments, as the negro slave-trade was and is on that of the nations. It never was taken into serious consideration by the monarchs of Europe collectively (though it would have been easy for them to have destroyed those nests of piracy at once), until they met at the congress of Vienna and Aix-la-Chapelle. Piracy on the Mediterranean is as old as history; but, after the Mohammedans settled on its shores, they considered the practice of it against Christians legal. The Christian slave, in the Barbary states, was entirely at the mercy of his master. In 1815, the whole number of white slaves was computed at 49,000; in Algiers, there were 1000. As early as 1270, England and France concluded a "holy alliance" for the chastisement of the people of Barbary. Philip the Bold attacked Tunis, then their chief place, and liberated all the Christian slaves. In 1389, the English, with the French, Genoese and Venetians, forming a united force under the earl of Derby (subsequently king Henry IV.), made a second attack upon Tunis with the same success. When the great Algerine state, after the downfall of the Almoravides, had fallen to pieces, Oran, Algiers, Tunis and Tripoli became petty independent republics, which, partly to revenge the expulsion of the Moors and Jews from Spain, devoted themselves, from 1494, principally to piracy. Ferdinand Charles V., Philip V., and others, attacked them in vain. (See *Barbary States.*) Little more success attended the attempt of the English. Blake, in Cromwell's time, destroyed the greater part of the united fleets of Tunis and Algiers in 1655, and liberated many prisoners; but, in 1669 and 1670, the fleet of Charles II., in connection with that of the Netherlands, bombarded Algiers without success. The French did the same in 1682, 1683, and 1688, with a like result. In 1683, the French admiral threw 1200 bombs into the city, and burned part of it; but the dey, Mezzo Morto, ordered the French consul Vacher to be put into a mortar and thrown towards the French. From the insufficiency of the means employed, the mutual jealousy of the European powers, the fanaticism of the Moors and Turks, and the fear inspired by the Barbary States, the humiliations which Algiers received were but momentary. In Algiers, as well as in Tunis and Tripoli, a Turkish militia, eager for pillage, were in possession of the government; and all the European governments have submitted to the degradation of purchasing peace from these barbarians by regular or extraordinary presents. France alone stood on a better footing with them; and England concluded with Algiers, Tunis, and Tripoli in 1662, and with Morocco in 1721, treaties which provided that no British subject should ever be made a slave, even if he should be found as a passenger on board a hostile vessel. All English vessels furnished with passes by the admiralty were to be allowed to navigate the Mediterranean unsearched; the cargoes of wrecked vessels were not to be seized, nor their crews to be made slaves; and the English men of war were to be permitted to enter the various Barbary ports to obtain provisions, without paying any duty. But the Barbary states kept these treaties only as long as they found it convenient. Austria not many years since, obtained letters of protection from the Porte, without tribute, for her own ships and those of Tuscany. Russia and Prussia obtained similar firmans from the Porte. Sweden and Denmark purchased peace by the payment of tribute. Portugal, from 1795, required a contribution from the Hanse towns for protecting their vessels on her coasts. Lübeck and Bremen, as late as 1806, concluded treaties with Morocco; but they were nevertheless, obliged at length to abandon almost entirely, the navigation of the Mediterranean. The United States protected their national honour by sending a squadron to Algiers in 1815, under the command of Decatur, who bombarded the city, and obliged her to declare that the flag of the republic should in future be respected. (See Lyman's *Diplomacy*, and our article *Barbary States.*) Sir Sidney Smith, in 1814, soon after the general peace, founded a society at Paris, called the *Institution Anti-pirate*, but it was dissolved in 1818. The attempt of Joseph Bonaparte to unite Britain and France against those pirates at the peace of Amiens, was defeated by the breaking out of war soon after the conclusion of that peace. Lord Exmouth (formerly Sir Edward Pellew) concluded, April 17, 1816, a treaty with the dey of Tunis, Mahmoud Pacha, which provided that prisoners should not be treated as slaves, and should be restored at the conclusion of peace. Britain, at the same time, undertook to protect her allies, Naples and Sardinia, against the Barbary powers. Lord Exmouth had already appeared, March 31, 1815, before Algiers, and forced the dey to conclude a treaty with Naples and Sardinia. But the king of Naples had to pay for every captured subject 1000 piasters, and 24,000 piasters annually, besides the usual presents; and Sardinia, for every captured subject, 500 piasters. Hanover was included in the treaty with Britain. Tunis gave up the Sardinian prisoners without ransom, but the Neapolitans had to pay 300 piasters each. Tripoli also declared, like Algiers, that she would abolish the slavery of Christians, and introduce the common laws of Europe respecting prisoners of war. May 15, 1816, lord Exmouth appeared a second time before Algiers, to force the dey to acknowledge the European law of nations respecting prisoners of war. The dey declared that the permission of the sultan was necessary, and captain Dundas carried the Algerine minister to Constantinople, while Exmouth returned to England. In the meantime, the dey had sent orders to Oran and Bona, that all the British, and their property, on shore and on shipboard, should be seized. This order was executed most cruelly. May 23, Turkish and Moorish soldiers surprised 359 Italian vessels, which had purchased permission to fish for coral, and were lying peaceably under the British flag in the port of Bona. The British consul was ill treated, and many Christians killed; and the cruelties did not cease until a messenger arrived, whom the dey of Algiers had despatched immediately after the conclusion of the treaty with Exmouth. The news of this barbarity roused the indignation of this country. July 28, lord Exmouth sailed with six ships of the line, two frigates, two brigs, and four bomb vessels, from Plymouth, and was joined by some more vessels at Gibraltar. The Dutch admiral Van der Capellen joined him also with six frigates. The fleet had on board 6500 men, and 702 guns, and appeared, August 27, off Algiers, where the dey had made preparation for an obstinate defence. 50,000 Moors and Arabians were assembled at Algiers. Lord Exmouth immediately sent the dey a written demand, stating that, as he had violated all his obligations by the cruelties at Bona, the Prince Regent required, 1. an immediate liberation of all Christian slaves without ransom; 2. restoration of the money which had been paid for the Sardinian and Neapolitan captives, amounting to 382,500 piasters; 3. a solemn assurance that he would in future respect the rights of humanity, like Tunis and Tripoli, and in all future wars, treat prisoners according to the usages of European nations; 4. that he should conclude peace with the king of the Netherlands on the same terms. As no answer followed, the fleet sailed up the bay, and, at two o'clock, the admiral's vessel lay within pistol shot of the battery. The firing continued from two o'clock till nine, at which time the European cannons, 702 in number, had silenced the Algerine, amounting to about 1000; and, as the city had suffered terribly, a peace was concluded next day. An additional clause abolished all consular presents, with the exception of the personal presents; and these were never to amount to more than £500 sterling. The dey, moreover, was obliged to liberate the imprisoned consul, and pay him 3000 piasters. Respecting piracy nothing was settled, and no guaranteee asked. The result, therefore, was, that the government of Algiers had declared the slavery of white captives abolished, but retained the right to make war upon any European power. This peace was concluded between Omar Pacha, and Britain and the Netherlands, August 28, 1816 (on the 6th of the month of Schawal, in the year 1231 of the Hegira). The dey returned 382,500 piasters, which he had already received from Naples and Sardinia, and gave up 1211 Christian slaves to lord Exmouth. (On his first expedition to Algiers, Tunis, and Tripoli, lord Exmouth had procured liberty for 1792 slaves.) The British loss in the battle amounted to 128 killed and 691 wounded; that of the Dutch to thirteen killed and fifty-two wounded. On the other hand, 5000 janizaries and 6000 Moors were killed, besides many women and children. Of the Algerine navy, only one brig and one schooner, with some smaller vessels of war, escaped. See the *Narrative of the Expedition to Algiers in the Year* 1816, *under the Command of Lord Exmouth* (London, 1819), by Salame, his lordship's interpreter.

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[*] Sweden seems altogether liberally disposed towards the negroes. In 1831, the government conferred on all the free negroes on the island of St Bartholomew the same rights with the whites; so that, in official papers, no distinction of colour is to be mentioned.

[†] "It should appear, then," says Mr Walsh, in his Notices of Brazil, "that, notwithstanding the benevolent and persevering exertions of Britain, this horrid traffic in human flesh is nearly as extensively carried on as ever, and under circumstances, perhaps, of a more revolting character. The restriction of slavery to the south of the line, was, in fact, nugatory and evaded on all occasions. The whole number of slaves captured by our cruisers, and afterwards emancipated, for nine years, from June, 1819, to July, 1828, was 13,281, being about 1400 on an average each year. During that period, it is supposed that nearly 100,000 human beings were annually transported as slaves from different parts of the coast, of whom more than 43,000 were legally imported into one city alone. It is to be regretted, therefore, that the proportion of the good to the evil is so small."

[‡] The creation of free labourers, by which the mechanic arts have come to honour, is one of the greatest revolutions which have taken place in society. It is due to the cities of the middle ages (see *Cities*); and great as the effects have been, still greater remain to be produced by the cultivation and intelligence which, in consequence of it, have spread, and are spreading through all classes of society.

The final extirpation of the band of robbers at Algiers, so long desired, was occasioned by the wish of the Polignac ministry to divert the attention of the public from the internal administration of France. (See our article *France*.) The immediate cause of the war against that state was quite trifling. Algiers had claims upon France for supplies furnished to the armies of the republic in Italy and Egypt—claims for which the dey could not obtain satisfaction. He at last wrote to the king of France himself, through the consul of a common friend. But no answer was returned; and when, at a public audience, in April, 1827, he asked the French consul the reason of this, the latter is said to have made an insolent reply; upon which the incensed dey struck him in the face with his fan. War was declared soon after against Algiers, but was carried on with no energy until the Polignac ministry sent an expedition thither in 1830, splendidly fitted out, and commanded by marshal Bourmont and admiral Duperré. It consisted of nine ships of the line, twenty-five frigates, six corvettes, twenty-five brigs, and eight steam-boats, besides bomb-vessels, 400 transports, and an army, admirably equipped, and comprising 37,331 men. May 25, the ships sailed from Toulon, reunited at Palma, in Majorca, after having been separated by a storm, and reached the coast of Africa on June 13. The forces landed at Torre Chica, or Sidi Ferruch, five leagues west of Algiers. No troops were stationed to defend the coast, and, on the 14th, early, the landing began. A single circumstance will show how complete had been the equipment of the expedition. The packages, sacks, barrels, &c., had been covered with a double water-proof envelope, so that, if occasion required, they might be thrown into the sea, and washed on shore by the waves uninjured. The plan was put in operation at the time when a heavy gale rendered all ordinary communication with the shore utterly impossible, and enabled the army already landed to receive supplies from the fleet. On the 29th, the field-pieces of the French arrived before Algiers, which was taken on the 4th of July. The dey was allowed to retire with his family to any place out of Africa, and the country was occupied in the name of the French. Since the revolution of the same month in France, the office of governor of the conquered country has been held by several different persons.

SLEEP; one of the most mysterious phenomena in the animal world. Similar appearances may also be observed in the vegetable kingdom. In sleep, the organs of sense, the power of voluntary motion, and the active powers of the soul, suspend their operation, in order to collect new strength. The vital activity, however, is in full vigour; the functions of the heart and the lungs (breathing, and the circulation of the blood) continue, but are more calm and equable than during the waking season; the nutrition of the system, the secretion and absorption of the juices, &c., are carried on more undisturbedly and perfectly. Hence sleep is not really a state of inactivity, but very partially to be compared to death. Man requires most sleep during infancy, and least during the period of active manhood. During this period, two hours before midnight and five after it seem to be sufficient; superabundance or deficiency of sleep soon produces evil effects. It is well not to have the sleeping room occupied during the day time. It should be well ventilated, cool, quiet, without flowers or any strong odour. The bed should be hard rather than soft, and the body should be relieved from ligatures. A short slumber after dinner (*siesta*) seems to be necessary to the inhabitants of warm climates: in colder climates it is unnecessary, and frequently injurious. The dormant state of some animals presents an interesting phenomenon. See *Dormant State*.

SLEIDANUS, JOHN (properly Philipson), born at Sleida, not far from Cologne, in 1506, was one of the most distinguished publicists of his age. He studied law at Liege, Cologne, Louvain, Paris, and Orleans; was for some time in the service of king Francis I. of France, and went, in 1542, to Strasburg. The princes of the Smalcaldic league (q.v.) made him its historiographer. The corporation of Strasburg employed him on important missions, and appointed him, in 1542, professor of law. The Protestants sent him, in 1545, to the king of England, and, at a later period to the council of Trent, where he was much esteemed. He corresponded with the most distinguished and learned men of his time, and died at Strasburg in 1556. He acquired much reputation by his work *De Statu Religionis et Reipublicæ Imper. Caroli V.* (Strasburg, 1555, folio), of which professor Ranke says, in his *Zur Kritik neuerer Geschichtschreiber* (Berlin and Leipsic, 1824), "it is, throughout, documentary;" but he shows that it is necessary to weigh these documents, and the sources of the writer's statements. The best edition was published by Am Ende (Frankfort on the Maine, 1785, 3 vols.), with critical and explanatory notes; the last volume contains the life of Sleidanus, his letters, &c. Sleidanus is distinguished for knowledge of the subjects which he treats, for his smooth and elegant style, and for great impartiality, considering that he lived in the midst of the events which he describes, and was deeply interested in them. The work has been translated into several languages (into French, by P. F. le Courayer, Hague, 1767, 3 vols.) Sleidanus also wrote *De quatuor summis Imperiis Lib. iii.* (Strasburg, 1556), which has been fifty-five times republished, and continued to 1676, by Schurzfloish; also *Summa Doctrinæ Platonis de Republica et de Legibus* (Strasburg, 1548); *Opuscula*, ed. Helias Putschius (Hanover, 1608). He also translated the *Mémoires de Comines* into Latin (Paris, 1545).

SLESWIC (in German, *Schleswig*); a Danish duchy in the southern part of Jutland, separated from Holstein on the south by the Eyder, and having the German ocean on the west, and the Little Belt on the east. The surface is low and level, the climate mild and healthy, and the soil productive, yielding great abundance of grain, and supporting numerous cattle and horses, which, with butter and cheese, grain and fish, are exported. Population, 323,000, on 3434 square miles. The inhabitants are Lutherans of German and Frisian descent, and, for the most part, speak Low German. Sleswic has always belonged to Denmark, and has usually been an apanage of the younger princes of the royal house. The capital, Sleswic, on the Schley or Sley, has 9000 inhabitants. Lat. 54° 32′ N.; lon. 9° 35′ E. It has some manufactures, and its commerce has been increased by a navigable canal. Near the town is the castle of Gottorp, the residence of the royal governor.

SLIDE is the name given to an inclined plane for facilitating the descent of heavy bodies by the force of gravity. In general, they have been objects of no great importance; but one erected, some years since, at Alpnach, in Switzerland, excited great interest throughout Europe. For many ages, the craggy sides and the deep ravines of Pilatus, a lofty mountain near Lucerne, were thickly clothed with vast and impenetrable forests of spruce fir, of the largest size and the finest quality, surrounded on every side by the most terrific precipices, inaccessible to all but a few daring hunters, who, at the risk of their lives, scaled these precipitous rocks and crags, in pursuit of the chamois. It was from these bold adventurers that the first intelligence was derived concerning the size of the trees, and the extent of the forests, until a foreigner, who had visited their sequestered glades and gloomy recesses, in pursuit of the chamois, was struck with amazement at the sight, and pointed out to the attention of several Swiss gentlemen the vast extent and superior quality of the timber. The project of making use of these rich natural stores was, however, rejected as chimerical, by persons whose experience and skill made them competent to judge; and it was, consequently, abandoned. This attempt having failed, these immense and valuable forests would, in all probability, have been suffered to flourish and decay, without ever being applied to the use of man, if it had not been for the enterprising genius and the unwearied exertion of M. Rupp, a native of Wirtemberg, who, owing to some political changes which had taken place in his own country, had settled near the lake of Lucerne. His curiosity being strongly excited by the accounts he had heard of the forest, he was induced to visit it. He was so much struck by its wonderful appearance, that he entertained the idea of being able to convey the trees into the lake of Lucerne, solely by their own gravity. During his long residence in Switzerland, his character and talents were so much appreciated, that, with the assistance of three Swiss gentlemen, he soon formed a company from among the proprietors, with a joint stock, to enable them to purchase the forest, and to construct a road or slide, down which it was intended the trees should be precipitated in the lake of Lucerne, an arm of which washed the bottom of the mountain, from which they could be easily conveyed by the Rhine to any part of the German ocean. This stupendous undertaking was finished in 1816. The slide of Alpnach was composed of between 25,000 and 30,000 large pine trees, squared by the axe, and formed into a sort of trough, about six feet broad, and from three to six feet deep. In the bottom of the trough there was a groove for the reception of a small stream of water, let in over the side of the trough every now and then, in order to keep the whole structure moist, and thereby to diminish the excessive friction occasioned by the rapidity of the descent of the tree. The side was sustained by cross timbers; and these cross timbers were themselves supported by uprights fixed into the ground. It was sometimes carried along the faces of the most rocky eminences; sometimes it went under ground; and again it crossed the deepest ravines, where it was supported by scaffoldings 220 feet high. The skill and ingenuity which were displayed, and the difficulties which were surmounted, in this vast undertaking, gained a just tribute of admiration to the enterprising individual who projected and carried it through. Before the work could even be begun, it was necessary to cut down many thousand trees, to obtain a passage for the labourers through the impassable thickets; and M. Rupp was himself frequently obliged to descend the steepest precipices, suspended by ropes, at the imminent hazard of his life; and though he was attacked by a violent fever, yet his ardour was so great that he had himself conveyed every day, on a barrow, to the mountain, in order to superintend the operations of his workmen. The expense attending this undertaking was, according to one account, £9000 or £10,000; but according to another, only £4250. Before the trees were launched into the slide, some previous preparation was necessary, which consisted in lopping off the branches, and stripping them of the bark, that they might descend with the greater ease. Every thing being prepared, the tree was introduced into the trough, with the root foremost; and it descended with such velocity as to reach the lake in six minutes, a distance of about three leagues or nine miles; but the largest trees performed the same distance in about three minutes. In order to prevent the accidents which might take place if the tree was let off before every thing was ready at the lower end, a regular telegraphic communication was established between the two extremities of the slide; and workmen were posted at regular distances of about a mile from each other, and so arranged that every station should be visible from the ones both above and below it. When the tree was launched, the workmen at the upper end hoisted their telegraph (which consisted of a board turning at its middle on a horizontal axle; the board, when placed upright, was visible from the two stations above and below it, but when it was turned horizontally, it was not perceptible from either); the same signal was repeated by all the rest in succession, so that the workmen at the lower end of the trough received intimation of the approach of the tree almost instantaneously. In a few minutes, the tree came thundering past the men, and plunged into the lake. The lowest board was then turned down, which was followed immediately by all the rest; and thus the workmen at the top were informed of the safe descent of the tree. The same operation was repeated during the rest of the day; and it was so arranged that a tree should descend every five or six minutes. When the progress of the tree was impeded by any obstacle, or when it started out of the trough, the board was only half depressed; and as the workmen knew by this signal that something was wrong, those who occupied the stations above and below the place where the tree had struck, came and assisted in removing the obstruction, which was generally occasioned by the springing of a beam in the trough. In order to prove the enormous force which the trees acquired by the rapidity of their descent, M. Rupp caused some of them to spring from the trough. The result was, that they penetrated the earth by their thickest ends to the depth of eighteen and sometimes twenty-four feet; and one of them having accidentally come in contact with another, cleft it from top to bottom, with the violence and rapidity of lightning. In order that none of the small wood might be lost, M. Rupp constructed several extensive manufactories in different parts of the forest, for the purpose of reducing it to charcoal. He also built magazines for preserving it when made. The trees, after having reached the lake, were made up into rafts, and floated down the Reuss, by the Aar, into the Rhine. By this rapid conveyance, they generally arrived at Basle a few days after they had left Lucerne. At Basle they passed out of the hands of the company. They were still floated down the Rhine in rafts to Holland; and thus performed a journey of about 4000 miles, in less than a month from the time they left Pilatus, until they arrived at the German ocean. We are sorry to add, that this stupendous work of art is now totally destroyed, and that almost every trace of it is obliterated on mount Pilatus. The great demand which formerly existed for the timber having entirely ceased, owing to political causes, the cutting and transporting of the timber was necessarily discontinued, and the slide was suffered to go to ruin. See Playfair's *Works*, vol. i, Appendix, No. 2, p. 89.

SLIGO; one of the five counties of the province of Connaught, Ireland. It extends about forty miles from north to south, and about thirty-eight from east to west. The character of the county is mountainous, and it comprises a great variety of soil. The most fertile and beautiful part is to the south of the town of Sligo; the waste land lies principally in the north and west. The principal streams are the Sligo, Bonnet, Owenmore, Arva, Cooloney, Esky, and Moy. The chief fresh water lakes are lough Gill, Arva, Talt, and Gara. Sligo is one of the limestone districts of Ireland. Lead ore, rich in silver, has been found at Ballysadare, and other places; copper ore, at the foot of Benbulben; and coal, on the eastern borders of the county, which forms part of the Connaught coal district. The six baronies into which Sligo is separated, are called Carbury, Corran, Coolavin, Leney, Tyreragh, and Tyraghrill. Sligo is a borough, and the chief town of the county; Ardnaru, Ballymote, and Colooney, are but small places; but the character of this district, though unsuited to the establishment of large towns, seems congenial to the growth of villages, of which it contains upwards of twenty. There are iron-works and collieries adjacent to the borders, and the manufacture of linen is pursued with great perseverance. The agricultural exports shipped at the port of Sligo are also considerable. The population of Sligo, which is chiefly Roman Catholic, in 1821, was 127,879; in 1831, 171,508.

SLIGO; a sea-port town of Ireland, capital of the county of the same name, is situated upon the river Gara, which emanates from lough Gill, and falls into Sligo bay, below the town. Sligo is one of the best towns in Connaught, and is daily advancing towards commercial importance. The custom-house and queen's stores are on an extensive scale. The origin of the place may be dated from the erection of a castle and abbey here, by Maurice Fitzgerald, lord justice of Ireland, in the year 1252. Sligo is a port of considerable trade; about 300 vessels of various classes belong to it, estimated to carry 20,000 tons. The harbour has been improved by the erection of a pier. Here are found rock cod, turbot, ling, and oysters. The chief exports consist of linen, yarn, butter, and oats; and the imports are coal, from Scotland principally, hardware, and pottery. Sligo is distant from Dublin 133 miles north-west. The population in 1831 is not recorded, but it is above 10,000.

SLING. The sling was a very general instrument of war among the nations of antiquity. The Baleareans, or people of the islands now called Majorca and Minorca, excelled at the sling, and were much employed in the armies of the Romans and Carthaginians. Livy mentions some tribes still more dexterous than the Baleareans, who discharged stones with so much force that neither buckler nor head-piece could resist them, and who hit their mark to a hair-breadth. The story of David and Goliath proves the efficiency of the sling.

SLOANE, Sir Hans, a distinguished naturalist, and founder of the British museum, was born in the north of Ireland, in 1660, and studied medicine in London, where he settled in the practice of his profession. In 1727, he became president of the royal society, of which he had previously been secretary. His Natural History of Jamaica (1707—1725) was the result of his observations in that island. George I. created him a baronet in 1716, and, on the accession of George II., he was named physician in ordinary to his majesty. His death took place in 1752. See *British Museum.*

SLOE. See *Plum.*

SLOOP, in naval affairs; a small vessel furnished with one mast. Sloops of war are vessels commanded by officers of a middle rank between a lieutenant and post-captain: these are styled *masters* and *commanders.* They carry from ten to eighteen guns, and are variously rigged, as ships, brigs, schooners, and sometimes cutters.

SLOPS; a name given to clothes for seamen.

SLOTH (*bradypus*). This name is given to two singularly constructed South American quadrupeds, remarkable for the extreme slowness of their motions, the accounts of which, however, have been somewhat exaggerated. The teeth are all cylindrical, the canines being longer and sharper than the rest. The toes are all united and enclosed under the common skin, the nails only appearing externally. These last are enormously large, compressed and curved, and when the animal is in a state of repose, are bent under along the soles of the feet. The feet are articulated obliquely upon the bones of the leg, and the outer margin only rests upon the earth; the bones of the toes are closely articulated, admitting of but little motion, and, for want of use, unite at a certain age, and form a solid piece. The fore feet or arms are much longer than the hinder; and when the sloth is upon the ground, it is obliged to draw itself along upon its elbows. The thighs are directed laterally, and the pelvis is so large, that the animal cannot bring together its knees. The internal structure is not less remarkable. The sloths are exceedingly helpless when on the ground, and seem at home only when upon trees, and, as is well observed by Waterton, when resting or moving, suspended beneath their branches. They feed on leaves. The three-toed sloth has its arms twice as long as the feet, and the body is covered with coarse hair, resembling withered grass; the colour is gray, often marked on the back with brown and white. It is the only quadruped which has nine vertebræ to the neck.—The two-toed sloth differs somewhat in its anatomical characters from the preceding, and, to our eyes, seems less unfortunately constituted. The fossil bones, and sometimes the entire skeleton of a gigantic animal nearly related to the sloths, have been found in various parts of the American continent, from Buenos Ayres to the southern parts of the United States. They show an extinct quadruped about twelve feet long and six or seven in height. It has received the name of *megatherium* (q. v.). The bones of another extinct quadruped, less than the former, but closely related to it, have been found in the limestone caves of the western country. It has received the name of *megalonyx* (q. v.), from the large size of the nails.

SLOUGH; a village of England, in Buckinghamshire, twenty-one miles west of London, where the celebrated doctor Herschel had his residence and observatory.

SMALKALDIC LEAGUE; the union, concluded in March, 1531, by nine Protestant princes and counts, and eleven free cities, for the mutual defence of their faith and political independence against Charles V. and the Catholic states, at Smalkalden, in Henneberg, at first for six years. It was confirmed by the conventions at Frankfort, in July and December of the same year. It was greatly strengthened by a third convention at Smalkalden, in 1535, by the admission of new members, the extension of the term of the league to ten years, and the resolution to keep on foot an army of 12,000 men. In 1537, it received a new bond of union in the articles drawn up by Luther, and signed by the theologians present at Smalkalden. These were called the *Smalkaldic articles.* Their original object was to serve as a representation of the Protestant faith at the council of Mantua, announced by the pope. The council was never held, but the articles, which were entirely in conformity with the Augsburg confession, were received among the symbolical books of the Lutheran church. Their violence proves the embittered feelings of Luther and his party. See *Reformation.*

SMALL POX; an eruptive fever, which, in its pustules, engenders an infectious matter, by means of which the disease may be communicated to other persons, who have not been before attacked by it. After the infection has taken place, about seven days pass before the virus operates and produces the disease. Then a feverish shivering pervades the body, which regularly lasts about three days; after which a number of red spots appear, first in the face, then over the breast, hands, and the whole body, sometimes very numerous, sometimes in a small number. This eruption also lasts about three days. From the spots rise pustules, which become inflamed and suppurate. The fever, in the meantime, continues without intermission. After the suppuration, the pustules begin to dry up, and to form a crust—a change which generally commences about the eleventh day. Commonly, the small-pox virus infects but once. A person who has had the small-pox will not have it again; nor does this virus infect at all times; on the contrary, it seems that a person must have a certain susceptibility for it; for numerous instances have occurred in small-pox epidemics of persons being spared who became infected at a later period, and even of some who have escaped during their whole life. According to some Arabic writers, this disease, as well as the measles, came first from Ethiopia to Arabia, about A. D. 572. In the first half of the seventh century, it passed to Egypt. The wars which were carried on in the East, and particularly the crusades in the thirteenth century, introduced it into Europe, first into Spain and France, and then into the other countries. When Maximilian I. made an expedition to the Netherlands, upon the termination of which the men at arms returned to Germany through the French provinces, the small-pox was carried by them from France, for the first time, into Germany, in 1495. From Europe it was transplanted to America and Africa; from Denmark it found its way, in 1733, even to Greenland. Whenever it appears in a country for the first time, it is more fatal, and makes greater ravages, than after having prevailed for some time. As this disease is propagated only by infection, it has been thought possible to extirpate it by the strict separation of the infected from the healthy. The obstacles, however, arising from the present situation of nations and the general diffusion of the disease in all countries and climates, seem to render such a plan impracticable. The violence of the disorder, however, is lessened when it is produced artificially by inoculation with the small-pox virus. Inoculation had long been practised in Turkey, especially among females, for the preservation of the beauty of young girls, when the celebrated lady Montague introduced it into Western Europe. In Constantinople, whither she had accompanied her husband, she caused her son, six years old, to be inoculated, and after her return to England, in 1722, her daughter also. From that time inoculation became common in England, notwithstanding the opposition of many physicians, and afterwards in other countries; but never became universal, because many prejudices were entertained against it, and because the disease, although mitigated, is yet not quite without danger. More recently, inoculation has been entirely superseded by vaccination, which is far more safe. See *Vaccination.*

SMALT. See *Cobalt.*

SMART, Christopher, born in 1722, at Shipbourne, in Kent, was placed at the grammar school in Durham, where his precocious talent obtained him the patronage of the duchess of Cleveland, who educated him at Pembroke college, Cambridge. A fellowship was conferred on him by his college in 1745. His marriage, in 1753, having vacated his fellowship, he settled in London, and commenced author by profession; in which capacity he became a principal contributor to the Old Woman's Magazine, and the Universal Visitor, besides publishing a volume of original poems, the Hiliad, &c. Poverty, however, overtook him; and his distresses, aided by intemperance, unsettled his intellects, and compelled his relations to place him for a while under personal restraint. His Song to David, written in a madhouse, and partly with charcoal, on the walls of his cell, bears a melancholy attestation to the strength of his mental powers, even in their derangement. A temporary recovery restored him to liberty for a few years, which was terminated by a new confinement. During the interval, he gave to the world his translations of Horace's works, in prose and verse, and of those of Phædrus, in verse. He died of a liver complaint, within the rules of the king's bench prison, May 12, 1771.

SME; an Egyptian goddess. See *Hieroglyphics.*

SMEATON, John, an eminent civil engineer, was born May 28, 1724, at Austhorpe, near Leeds. The strength of his understanding and the originality of his genius appeared at an early age. His father was an attorney; and being desirous to bring up his son to the same profession, he carried him to London in 1742, where he attended the courts in Westminster hall; but, after some time, finding that the law was not suited to his disposition, he wrote a strong memorial to his father on the subject, who immediately desired the young man to follow the bent of his inclination. In 1751, he began a course of experiments to try a machine of his own invention, to measure a ship's way at sea, and made two voyages, in company with doctor Knight, to try the effect of it, and also for the purpose of making experiments on a compass of his own construction, which was rendered magnetical by doctor Knight's artificial magnet. In 1753, he was elected a fellow of the royal society; and a number of papers which he published in their Transactions, show how highly he deserved the honour. In 1755, the Eddystone light-house was burnt down, and Mr Smeaton being recommended to the proprietors of that building as an engineer in every way calculated to rebuild it, he undertook the work, which was completed in 1759, much to the satisfaction of the parties concerned. (See *Light-House.*) After this, Mr Smeaton was employed on many works of great public utility. He made the river Calder navigable—a work that required talents of the very first order, owing to the impetuous floods in that river; and planned and attended to the execution of the great canal in Scotland, for conveying the trade of the country either to the Atlantic or German ocean. Mr Smeaton was appointed engineer to Ramsgate harbour, and brought it into a state of great utility by various operations, of which he published an account in 1791. He constructed a variety of mills, built a steam-engine at Austhorpe, and made a vast number of experiments with it to ascertain the power of Newcommen's engine (see *Steam-Engine*), which he improved and brought to a far greater degree of perfection, both in its construction and powers, than it had before. During many years of his life, he was a frequent attendant upon parliament, his opinion on various works, begun or projected, being continually called for. He died in 1792. He was fond of science for its own sake, and spent much of his leisure in the study of astronomy; for which purpose, he fitted up an observatory, in his house, furnished with curious contrivances of his own invention. He was a friend and encourager of merit wherever he discerned it; and many persons were indebted to him for important assistance on entrance into life. Mr Smeaton was the institutor, in 1771, of a society of civil engineers, which was dissolved at his death, but afterwards renewed. They published, in 1797, a volume of his Reports. (For his labours in constructing bridges, mills, harbours, engines, &c., see his *Reports*, in 3 vols., 4to.) Of his inventions and improvements of philosophical instruments, an idea may be formed from the list of his writings, which is inserted in Hutton's Dictionary.

SMELL. The sense of smell is that by means of which we perceive the effluvia which arise from bodies. The delicate mucous membrane, which lines the internal parts of the nose, and through which the olfactory nerve, descending from the brain, is distributed, is the sole organ of this sense. The air, passing through the nose, brings the effluvia, or odoriferous parts of bodies, into contact with the nerve; the nerve transmits the impression to the brain, by means of which it is perceived by the mind. The moisture of the membrane above named is essential to the perfection of the smell. This sense is intimately connected with the respiration, and the whole life of the animal, and is most nearly related to the sense of taste; and many of the objects of the two senses are the same. The fine odoriferous effluvia of bodies are of incredible tenuity. Suppose, for instance, what daily experience teaches us is possible, that, with a portion of oil of lavender only one line square, we perfume a chamber eighteen feet long, as many broad, and ten feet high, and containing 3240 cubic feet, or 466,560 cubic lines, and suppose, moreover, that in each cubic line there are floating but four of the odoriferous particles, we shall then find that one cubic line of oil may be divided into 1,866,240 odoriferous particles. If a piece of ambergris, weighing 100 grains, is left upon a balance which is sensible to the smallest part of a grain, in an open chamber, notwithstanding there is free draught of air from without, the chamber is filled with the odoriferous particles;

and yet, at the end of five and a half days, not the smallest diminution of the ambergris is perceptible; from which the extreme fineness of the effluvia may be inferred. See *Sense*.

SMELT (*osmerus*); a small but delicious fish, allied to the salmon, inhabiting the salt water about the mouths of rivers. Like the trouts, all parts of the mouth are armed with long and pointed teeth, and there are four or five upon the tongue. The body is long, and somewhat compressed; the eyes large and round, and the under jaw longest. The European smelt is from three to six inches long; the head and body are semitransparent, with the most brilliant tints of green, and silvery. It has a strong odour, by many compared to that of violets. It inhabits the sea as well as the depths of those lakes which have a sandy bottom, and in the spring ascends the rivers in great multitudes, for the purpose of depositing its spawn. In certain districts, it is extremely abundant. The American smelt (*osmerus viridescens*, Les.) is considered a different species. It grows to the length of ten inches. The body is long, somewhat compressed, green on the back, and silvery-white on the sides. It inhabits the coasts of New England, and as far as the Hudson, but is unknown farther south. It is taken with the line. The flesh is highly esteemed.

SMELTING. See *Ores*, *Mine*, *Iron*, *Silver*.

SMITH, ADAM, a distinguished writer on morals and politics, was the only son of Adam Smith, controller of the customs at Kirkaldy, where he was born June 5, 1723, a few months after the death of his father. He received his early education at the school of Kirkaldy, whence he was removed, at the age of fourteen, to the university of Glasgow, where he remained until 1740, when he repaired to Baliol college, Oxford, as an exhibitioner on Snell's foundation. Quitting Oxford, and all views to the church, which had led him there, in 1748, he took up his abode at Edinburgh, and read some courses on rhetoric and polite literature, under the patronage of lord Kames. In 1751, he obtained a more permanent provision by being elected professor of logic at Glasgow, and, the year following, of moral philosophy at the same university. He was now in a situation which perfectly agreed with his talents and inclination, and both in matter and manner his lectures were of the highest merit. Those on moral philosophy contained the rudiments of two of his most celebrated publications, of which the first, entitled the Theory of Moral Sentiments, appeared in 1795, and was most favourably received. His moral theory is founded upon sympathy, which he makes the source of all our sentiments on the propriety or impropriety of actions. To this work he afterwards added an Essay on the Origin of Languages; and the elegance and acuteness displayed in these treatises introduced him to several eminent persons, and, among others, to Mr Charles Townsend, who engaged him, in 1763, to attend the duke of Buccleugh in his travels. A long residence in France with this nobleman introduced him to the acquaintance of Turgot, Quesnay, Necker, D'Alembert, Helvetius, and Marmontel, to several of whom he was recommended by David Hume. He returned to Scotland in 1766, and immediately retired, with his mother, to Kirkaldy, where he led a life of strict study and retirement for ten years, the fruit of which was his celebrated Inquiry into the Nature and Causes of the Wealth of Nations (2 vols. 4to., 1776.) It is unnecessary to say that this work has become a standard classic, and that it may be deemed the formal precursor of the modern science of political economy. (See *Political Economy*.) About two years after the publication of this able production, he obtained, through the patronage of the duke of Buccleugh, the lucrative place of commissioner of the customs in Scotland, in consequence of which he removed, with his mother, who attained a great age, to Edinburgh. In 1787, he was chosen rector of the university of Glasgow; and soon after his health began to decline, and he sunk under a chronic disease, in July, 1790, at the age of sixty-seven. A short time before his death, he ordered all his manuscripts to be burnt, except a few detached essays. Doctor Smith was a man of much simplicity of character, subject to absence of mind in society, and better fitted for speculation than action. He was, at the same time, much beloved by his friends for his kind and benignant disposition, and died generally admired and highly respected. (See his *Life* by Dugald Stewart, and Mackintosh's *Progress of Ethical Science*.)

SMITH, CHARLOTTE, an ingenious but unfortunate English poetess and novel-writer, was born in 1749, and married, at a very early age, a West India merchant, whose imprudence, aggravated (if we are to believe the allusions of his wife in her fictitious narratives) by legal chicanery, ultimately dissipated the whole of a once handsome property, and consigned its former possessor to a prison. In this melancholy situation, his wife dedicated her talents to the support of her husband and family. Her principal novels are her Romance of Real Life; Emeline; Desmond; Marchmont; Ethelinda; Old Manor House; Celestina, &c. Much of the latter part of her life was passed in Normandy. She died in England in 1806. Besides the works already mentioned, Mrs Smith wrote several pleasing volumes for young persons, and two volumes of sonnets.

SMITHFIELD; a square in London, in which the greatest cattle-market in England is held, as is also Bartholomew fair. The spot is still shown where heretics were formerly burnt.

SMOKING TOBACCO. See *Tobacco*.

SMOLENSK, BATTLE OF. Smolensk, one of the oldest cities in the Russian empire, formerly belonging to Poland, the key to the interior of the empire, situated on the left bank of the Dnieper, contains about 1500 houses and 12,000 inhabitants. Under the walls of this city, August 8, 1812, the two main divisions of the Russian forces, under Barclay de Tolly and Bagration, united, after tiresome marches and great loss, and formed a plan to attack the French troops, whom they had hitherto avoided. But on the 16th, Napoleon appeared before Smolensk, and occupied the heights. Junot was directed to march to the right with the fifth division (the Westphalian), to cut off the Russians from the route to Moscow. Ney commanded the left wing; Poniatowski the right, and Davoust the centre. In the beginning of the year, Smolensk had been strengthened as much as possible. But Barclay de Tolly, on account of the superior force of Napoleon, was unwilling to venture a general engagement, as the French had succeeded in completely surrounding his left wing. He stationed himself, therefore, in the rear of the city, and, to make it an effectual means for covering his retreat, occupied it with two divisions, so that its capture, on the 17th, was delayed till midnight, particularly as a large body of cavalry were in possession of the passages to the plains, and numerous foot soldiers of those to the Dnieper. On account of the strength of the walls (4000 feet in circumference, 15 feet thick, and 25 feet high), with towers at regular intervals, supporting heavy cannon, and the numbers of the garrison, 30,000 strong, the assailants suffered greatly; and when the Russians marched out, at midnight, after an eight hours' engagement, to follow the main body under Barclay, the whole city was in flames. The conflagration raged for thirty-six hours. The plan of Napoleon to take the Russian army prisoners in Smolensk, or to cut off their passage to Moscow, was frustrated. More than two thirds of the city lay in ruins. The Russians, according to their own reports, lost 4,000 men; the French more than double that number; the Poles more than 5000; and owing to the devastation of the surrounding country, the scarcity in the captured city was so great, that most of the wounded and the numerous sick died in the lazarettos, and a dreadful epidemic was created. The Russians could not forgive Barclay for having sacrificed this holy city, as they used to call it, this bulwark of Moscow, without risking a general engagement. He, therefore, soon after, laid down his commission, under the pretence of ill health, and was succeeded by Kutusoff. But he had saved the army. The flames of Smolensk, and the outrages of the French soldiers, roused the Russians to revenge, and to the most obstinate resistance.

SMOLLETT, TOBIAS, a celebrated novelist and miscellaneous writer, was born at Dalquhurn, near Renton, in the parish of Cardross, Dumbartonshire, in 1721. He was first taught at the parish school of Dumbarton, and he afterwards prosecuted his studies at the college of Glasgow with diligence and success. Here he contracted a fondness for the medical profession, and was apprenticed to Mr John Gordon of that city. In this capacity he studied medicine and the belles lettres. He occasionally indulged in satirical effusions, not only against those who merited it, but against the more decent and respectable persons whom he knew, and his conversation has been described as a "string of epigrammatic sarcasms against one or other of the company." In the seventeenth year of his age he wrote a tragedy, called the *Regicide*, the subject of which was the assassination of James I. of Scotland.

In 1740, when his apprenticeship was finished, he set out for London to solicit employment in the army or navy, and to bring his tragedy upon the stage. Although the exertions of his friends could not recommend his play to the favour of the theatres, they procured for him the situation of surgeon's mate to one of the ships of the line that went out in the unfortunate expedition to Carthagena in 1741, under Admiral Vernon.* Disgusted with the navy, our author quitted the service in the West Indies, and resided for some time in Jamaica, where he became acquainted with Miss Lascelles, a beautiful woman, whom he afterwards married.

In 1746 he returned to London, and though a whig in politics, yet the love of his country predominated, and he expressed his feelings respecting the cruelties of the English troops during the rebellion, in a poem, entitled, the *Tears of Scotland*,—a poem written with elegance and spirit. In the same year he published his *Advice*, a Satire, an acrimonious attack upon several individuals of rank and fortune. In the same year he wrote an *Opera*, entitled *Alceste*, for Mr Rich, manager of Covent Garden; but in consequence of a dispute, which exposed the manager to the shafts of his wit, it was neither acted nor printed. In 1747 he published his *Reproof*, a Satire, being the second part of the *Advice*, continuing the same system of inveterate attack upon all the leading personages of the times. In the same year he married Miss Lascelles, who expected a portion of £3000 in West India property. Trusting to this expectation, he lived elegantly and hospitably; but being able to recover only a small part of the above sum, and that by means of expensive litigation, he got into serious pecuniary difficulties, which compelled him to have recourse to his pen. He accordingly devoted his time to literature, and brought out in 1748 his *Adventures of Roderick Random*, in 2 vols. 12mo., a work which both bettered his pecuniary circumstances, and widely extended his reputation. The tragedy of the *Regicide*, already mentioned, was published by subscription in 1749, and he derived from it considerable emolument. He went to Paris in 1750, and about this time he composed his *Adventures of Peregrine Pickle, with the Memoirs of a Lady of Quality*, which appeared in 1751 in 4 vols. This work is marked with broad humour, and great knowledge of the world. Real personages and real incidents are often described, as in Roderick Random, but the adventures, and frequently the language, were stained with an indelicacy and immorality that were highly reprehensible. The edition was quickly sold; another was bought up in Ireland; and the work was translated into French. Our author received, too, a very handsome sum for inserting in this novel the *Memoirs of Lady Vane*, which were furnished by herself, and which gave additional popularity to the work.

Notwithstanding the great success of Roderick Random and Peregrine Pickle, Smollett seems to have been anxious to quit the profession of an author. He obtained about this time the degree of M. D. probably from some foreign university, and he announced his intention to practise medicine, by a work entitled, *An Essay on the External Use of Water*, 1752, 4to. In the practice of physic, however, he was not successful, and was compelled again to have recourse to his pen. In 1753 he published his *Adventures of Count Fathom*, in 2 vols. 12mo., but it was neither so ably written nor so popular as its predecessors. Encouraged by a liberal subscription, Smollett published, in 1755, a new translation of *the History of the renowned Don Quixote, from the Spanish, &c. illustrated with* 28 *new copperplates*, in 2 vols. 4to. When this work was printed, he made a visit to Scotland, to visit his mother, who then resided at Scotston in Peeblesshire; and he took an opportunity of visiting various parts of his native country, particularly the vicinity of Glasgow, the scene of his early affections, where he spent two days with Dr Moore, then an eminent surgeon in that city.

When he returned to London, he was induced to take the chief management of the *Critical Review*, a new literary Journal, which began in 1756 under the patronage of the tories, and in opposition to the *Monthly Review*, which had commenced in 1749. His next work was, *A Compendium of Authentic and Entertaining Voyages*, digested in a *Chronological*

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* Smollett afterwards gave an account of this expedition in *Roderick Random*, and one more circumstantial in the *Compendium of Voyages*, in 7 vols. 12mo, 1756.

Series, in 7 vols. 12mo. In 1757, when a stain had been left on the courage of England, our author wrote the *Reprisal, or the Tars of Old England*, an after-piece in two acts, intended to excite the national spirit. It was favourably received at Drury Lane, and is still a favourite on the stage. Early in 1758, Smollett gave to the world his *Complete History of England, deduced from the descent of Julius Cæsar to the treaty of Aix la Chapelle in* 1748, in 4 vols. 4to. This work is said to have been composed and printed in fourteen months, a mental effort almost unrivalled. It was reprinted in the following year in 11 vols. 8vo. and the weekly sale was above 10,000.

When Sir John Mordaunt was tried for his unsuccessful expedition against Rochefort in 1757, some blame was cast upon Admiral Knowles, who defended himself in a pamphlet bearing his name. This pamphlet was reviewed in the Critical Review with such improper acrimony, that the Admiral prosecuted the printer for a libel. When sentence was about to be pronounced against the printer, Smollett avowed himself the author, and was sentenced to a fine of £100 and three months' imprisonment. This spirited conduct on the part of our author was highly applauded, and he was visited in the King's Bench prison by many of the most distinguished characters of the day. During his confinement he composed his *Adventures of Sir Lancelot Greaves*, which first appeared in detached portions in the monthly numbers of the *British Magazine* for 1760 and 1761, but it was afterwards published separately in 2 vols. in 1762. About this time he wrote the histories of *France, Italy* and *Germany*, for the modern part of the *Universal History;* and in 1761, 1762 and 1765, he published, in five volumes, his *Continuation of the History of England* down to 1765. The unpopular administration of Lord Bute was naturally defended by Smollett, when he perceived that its unpopularity was in some measure owing to the premier being a Scotsman. For this purpose he established a weekly paper called the *Briton*, which gave rise to the *North Briton*, under the management of the celebrated Wilkes.

In 1763, he had the misfortune to lose his only daughter, who died in the fifteenth year of her age, and left him in a state of hopeless despondency. The state of his own health, which too assiduous study had impaired, combined with this domestic calamity, induced him to quit England for a milder climate. He accordingly spent about two years in France and Italy, and on his return in 1766, he published his *Travels through France and Italy, containing Observations on Character, Customs, Religion, Government*, &c. with an account of the *Climate of Nice*, and a *Register of the Weather*, in 2 vols. 8vo. In 1766, he again visited Scotland; and in 1767 he published his *History and Adventures of an Atom*, in 2 vols. 12mo., a political romance, supposed to be written in 1768, and displaying under *Japanese* names the different party men in Great Britain from 1756 to 1761.

A recurrence of his ill health induced him again to visit Italy in 1770. After a short residence at Leghorn he retired to Monte Nuovo, a romantic situation in its vicinity. Here he composed his *Expedition of Humphry Clinker*, in 3 vols. 12mo., a work which met with high approbation, and is regarded as one of the best of all his works. This was the last effort of his pen. His bodily strength gradually declined, and he died at his house near Leghorn on the 21st October 1771, in the 51st year of his age. His widow erected a plain monument to his memory, with an inscription by Dr Armstrong. In 1774 a Tuscan column was erected to his memory on the banks of the Leven by his cousin, James Smollett, Esq. of Bonhill, with an inscription partly written by Dr Johnson, Professor G. Stuart, and Mr Ramsay of Ochtertyre.

An edition of Smollett's works, in 8 vols. 8vo., was published in 1797, with Memoirs of his Life; to which is prefixed a *View of the Commencement and Progress of Romance*, by Dr Moore. Dr Anderson had previously collected the poetical works of Smollett, which appeared with an excellent Memoir of his Life, in the works of the British Poets. The same learned editor published a new edition of his *Miscellaneous Works*, in 1796, and in 1803, he published in a separate volume, *The Life of Tobias Smollett, M. D. with Critical Observations on his works*, which went through several editions. The following is Dr Moore's estimate of Smollett's character:—"The person of Dr Smollett was stout and well-proportioned, his countenance engaging, his manner reserved, with a certain air of dignity that seemed to indicate that he was not unconscious of his own powers. He was of a disposition so humane and generous that he was ever ready to serve the unfortunate, and, on some occasions, to assist them beyond what his circumstances would justify. Though few could penetrate with more acuteness into character, yet none was more apt to overlook misconduct when attended with misfortune. He lived in a hospitable manner, but he despised that hospitality which is founded on ostentation. He invited to his plain but plentiful table, the persons whose characters he esteemed, in whose conversation he delighted, and many for no other reason than because they stood in need of his countenance and protection. Free from vanity, Smollett had a considerable share of pride, and great sensibility; his passions were easily moved, and too impetuous when raised; he could not conceal his contempt of folly, his detestation of fraud, nor refrain from proclaiming his indignation against every instance of oppression. He was of an intrepid, independent, imprudent disposition, equally incapable of deceit and adulation; and more disposed to cultivate the acquaintance of those he could serve, than of those who could serve him. What wonder that a man of his character was not what is called successful in life." For a masterly estimate of the comparative merits of Smollett and Fielding, see Sir Walter Scott's Life of Smollett, in his Lives of the Novelists.

SMUGGLING; the offence of importing goods without paying the duties imposed thereon. See *Contraband*, and *Taxes*.

SMYRNA (Turkish, *Ismir*); a city on the western coast of Natolia, situated at the bottom of a deep gulf, about fifty miles from the sea, in a delightful country; lat. 38° 28′ N.; lon. 27° 8′ E. Smyrna was probably an Ephesian colony, and was successively in the possession of the Æolians, Ionians, Lydians, and Macedonians. It was destroyed by the Lydians, and was afterwards rebuilt by Alexander. Having been received into the Ionian confederacy, it soon became the mart of Asia Minor, the seat of art, and the resort of strangers. In the thirteenth century, only the ruins of its former splendour were left; but after the Turks became masters of the country, it revived. The town rises from the shore to a hill on which is an old castle, and not far from this lies a smaller castle. The quarter inhabited by Europeans, called the Frank quarter, is the pleasantest part of the city, and lies entirely on the sea. Carriages are rare, and the streets extremely narrow; and the bustle in this great mart of the Levant is remarkable. The population is estimated at about 120,000, among which are 65,000 Turks, 25 to 30,000 Greeks, 7000 Armenians, 12,000 Jews, and some Europeans and Americans. There are Armenian, Greek, Roman Catholic, and Protestant churches, several monasteries, and three synagogues here. The bay is capacious, the anchorage excellent, and the water so deep that large ships come close to the wharfs. Smyrna has been several times destroyed by earthquakes, and frequently ravaged by the plague. In 1814, from 50,000 to 60,000 persons are said to have perished by this scourge. In the year 1831, Smyrna suffered very severely from the cholera. The principal articles of import consist of grain, furs, &c., from Odessa and Taganrog; cotton stuffs, silk and woolen goods, coffee, cochineal and dye woods, glass, &c., from Great Britain, France, Italy, the United States, &c. The principal exports are raw silk and cotton, fruits, opium, rhubarb, drugs, oil, madder, Turkey carpets, wool, wax, &c. Smyrna is one of the places which laid claim to the honour of having given birth to Homer. On the banks of the Meles was shown the spot where he was brought into the world; and, in a cavern by its source, the place was pointed out where he was said to have written his poems; the coins of Smyrna bore his image, and the citizens held their assemblies under the columns of his tomb. A short distance from this place, near the baths of Diana (several fountains, which unite to form a lake), are some ruins, supposed to be the remains of a temple of Diana. The *Spectateur Oriental*, formerly published in Smyrna, was succeeded, in 1827, by the *Observateur Impartial*, which has since given place to the *Courrier de Smyrne*.

SNAKE. See *Serpent*.

SNAKE-ROOT (*aristolochia serpentaria*). This plant is widely diffused through the United States; but, as it grows solitarily in woods, and has nothing conspicuous in its flowers or foliage, and, besides, does not put forth its shoots till late in the season, it is detected with difficulty, and the root bears a high price. This last is used in *materia medica*, and is exported to Europe. The odour is aromatic; the taste warm, bitter and pungent, resembling, in some degree, that of camphor; medicinally it is stimulating, diaphoretic and tonic. The stem is eight or ten inches high, flexuous, bearing oblong, cordate, very acute leaves. The flowers are situated on radical foot-stalks, and consist of a swelling, curved tube, expanding at the orifice.—The *A. sipho*, or *Dutchman's pipe*, so named from the form of the flower, is a climbing vine, with very large heart-shaped leaves, which grows wild on the more southern parts of the Alleghanies. It is cultivated for ornament in gardens.

SNEEZING is a violent convulsive motion of the muscles of respiration, which is preceded by a deep inspiration, that fills the lungs, then forces the air violently through the nose, while the lower jaw is at the same time closed, and shakes the head and whole body. It is always excited by some irritation affecting the inner membrane of the nose, which, however, may be produced by very different causes. Any extraneous body brought into contact with the pituitary membrane, will excite sneezing. As a direct communication exists between the eyes and the nostrils, into which the tears are constantly passing through the lachrymal ducts, a reverse sympathy is excited in many people by irritations of the eye, so that the membrane of the nose is at the same time titillated; whence, in such persons, sneezing is immediately excited by sudden exposure to a strong light, as by passing from a shade into a bright sunshine. Irritations of the lungs, stomach and bowels, &c., have been mentioned as causes of sneezing. Sneezing, if very often repeated, may become dangerous, by an accumulation of blood in the head. If it originates only from too great irritability of the membrane of the nose, injections of tepid milk or water into the nostrils may cure it; otherwise, opiates, camphor, and other anti-spasmodics, may be necessary. Few animals, perhaps only the dog, sneeze precisely like man. The custom of blessing persons, when they sneeze, is very ancient. Aristotle professes ignorance of the origin of it. This custom is mentioned by various ancient writers. Sneezing at sacrifices was considered a good omen.

SNIPE. The snipe has many of the external characters of the woodcock, but differs in having the lower part of the tibia bare of feathers, and in its habits. It keeps in marshy places, and does not frequent woods; and its flight is high, rapid, and very irregular.

SNORRO STURLASON. See *Sturlason*.

SNOW is formed in the air, when the temperature of the atmosphere sinks below the freezing point of water. The particles of moisture thus frozen from flakes, having great diversities of density, and displaying innumerable varieties of the most beautiful forms. Snow-flakes, examined by a microscope, appear to be regular crystals; and Scoresby, who has figured ninety-six varieties in his Arctic Regions, arranges them under five forms, lamellar, spicular, pyramidal, &c. Like ice, and other crystallized bodies, snow would be transparent were it not that the air which it contains renders it opaque. The regular crystals are found only when the air is calm, and the cold intense, and do not often occur, therefore, in temperate regions. Snow has been seen in the polar regions of red, orange and salmon colour. This occurs, both on the fixed and floating ice, and appears, in some cases, to result from vegetable, and in others from animal matter, suspended in the sea, and deposited upon the ice around. Snow storms sometimes present a luminous appearance, covering all objects with a sheet of fire. The electricity of snow is generally positive. Snow-water has been found, by chemical analysis, to contain more oxygen than rain or river water—a fact which accounts for its superior activity in causing iron to rust, &c. Snow answers many valuable purposes in the economy of nature. Accumulated upon high regions, it serves to feed, by its gradual melting, streams of running water, which a sudden increase of water in the form of rain would convert into destructive torrents or standing pools, and, in many countries, tempers the burning heats of summer, by cooling the breezes which pass over it. In severer climates, on the contrary, it serves as a defence against the rigours of winter, by the protection which it affords to vegetation against the frost, and the shelter which it gives to animals, who bury themselves under the snow. Even in more temperate climates, vegetation suffers from an open winter; and it has been found that Alpine plants perished in the mild winter of England, from want of their usual snowy covering. (See *Glaciers*, and *Ice*.)

The *snow-line*, or plane of perpetual snow, is the elevation at which mountains are covered with perpetual snow. The progressive diminution of temperature, as we ascend through the air, must finally conduct us to a region of perpetual snow, the elevation of which is, of course, very different in different latitudes. On the northern side of the Himalaya mountains, it is about 17,000 feet; on Chimborazo, 15,802 feet. Humboldt fixes the altitude of perpetual snows, under the equator, at 15,748 feet. Towards the pole, it is much lower. On the Alps, under 46° north latitude, it is about 8860 feet. On the Pyrenees, it is stated by Humboldt at 1400 toises, or about 8850 feet. As we recede from the equator towards the north or south, it sinks more rapidly, and, at the North cape, in latitude 71°, it is estimated at only 366 toises (about 2440 feet). In Mexico, Humboldt, from the whole of his observations made in 19° north latitude, places the elevation of the snow-line at 15,028 feet, or, at the lowest estimate, 14,708 feet. From the latitude of 19° to about 30°, we are not acquainted with the altitude of a single snowy peak. Too little is known of the range of rocky mountains to enable us to state with accuracy their lowest plane of perpetual snow. In fact, besides the constant data of the latitude and elevation, the position of the snow-line depends so much upon variable causes, such as the form of the summits, the comparative altitude and other physical features of the surrounding country, the particular exposure of the mountains, &c., that no general rule can be given for determining the limits of perpetual snow in any given latitude, at least, with our present very imperfect information. (See *Mountains*, *Climate*, and *Temperature*.) Even the few facts which have yet been collected on this subject may stand in need of the corrections of more accurate measurements of heights, and, in addition to this, the plane of perpetual snow does not by any means maintain a constant elevation in the same latitude; but it varies with the vicissitudes of the seasons, rising during the heats of summer, and sinking by the cold of winter; changing also from one summer to another, according to the prevailing temperature of the year. See Alcenius *De Termino Atmosphæræ terrestris nivali* (Abo, 1823, 4to.)

SNOW; a vessel equipped with two masts, resembling the main and fore-masts of a ship, and a third small mast, just abaft the main-mast, carrying a sail nearly similar to a ship's mizzen. The foot of this mast is fixed in a block of wood, or kind of step, upon the deck, and the head is attached to the after part of the main-top.

SNOWBALL TREE, OR GUELDER ROSE (*viburnum opulus*). In the wild state, the flowers of this shrub are disposed in terminal corymbs, and the outer ones are much larger than the others. They are succeeded by small red globular berries, of a disagreeable flavour. A variety which is cultivated in the gardens has all the flowers large, which gives to the corymbs the appearance of large white balls, and is a highly ornamental plant. These flowers are mostly barren. The Guelder rose is found wild in most parts of Europe; and the variety above mentioned is of easy culture, and common in gardens.

SNOW-BIRD (*fringilla nivalis*, Lin., *F. Hudsonia*, Wilson; *F. hiemalis*, Audubon); specific character bluish black, inclining to gray; belly and lateral tail-feathers white; length about six and a half or seven inches. This hardy and numerous species, common to both continents, pours in flocks from the northern regions into the United States about the middle of October. At this season they migrate into the Southern States in great numbers. They collect a scanty pittance from the frozen and exposed ground, and, at length, driven by hunger, are seen about barns and out-houses and the steps of doors in towns. Before the severity of the season commences, they find their food in thickets and among fallen leaves. In the latter end of March, or the beginning of April, they reappear in flocks from the south, frequenting the orchards or the woods. Soon after, they retire mostly to the northern or remote arctic regions, to breed; many however, according to Wilson, remain in the high ranges of the Alleghany mountains. In Europe, these birds dwell almost wholly among the Alps, the Pyrenees, and the high northern chains on the limits of the region of perpetual ice, and rarely descend in winter into the plains.

SNOWDON, OR PLINLIMMON; the highest mountain in Wales, 3571 feet high. See *Wales*.

SNOW-LINE. See *Snow*.

SNUFF. See *Tobacco*.

SNYDERS, SNEYDERS, OR SNYERS, FRANCIS, an eminent painter of the Flemish school, born at Antwerp, in 1579, studied the rudiments of his art under his celebrated countryman Van Bahlen, after which he is said to have travelled through a great part of Italy; but this is denied by some writers. On his return to Flanders, he became attached to the household of the archduke Albert, and finally took up his abode at Brussels. Snyders, who is considered never to have been surpassed in his delineation of beasts, fish, hunting-parties, &c., was accustomed to work in concert with Rubens and Jordaens: and some of the most valuable paintings of that school are their joint production. Many of his choice pieces are to be found in the collections at Munich, and Dresden, and in the Escurial. His death took place in 1657.

SOANE, JOHN; an English architect, born in 1756. His genius was fostered by Mr Dance, and he was admitted a student of the royal academy. He obtained the prize for the best design of an original building, and in 1777, was sent to reside in Italy at the expense of the king. While in Italy, he was elected a member of the imperial academy of Florence, and of the academy of arts at Parma. After his return to England, he speedily acquired reputation, and was employed in many important works; among others, on the bank of England. His first appearance as an architectural author, was in 1789, when he published a volume describing and delineating the works which he had executed in various parts of England. About this time, he was chosen an associate of the royal academy. In 1803, he became a royal academician, and, on the resignation of Mr Dance, was placed in the chair of professor of architecture. The lectures which he delivered in his capacity of professor, were admired for their style and the information which they conveyed. In 1794, he was selected by a committee of the house of lords, to propose designs for the improvement of the buildings adjacent to Westminster-hall. His museum of antiquities is much resorted to. He died on the 20th January, 1837.

SOAP; a compound, in definite proportions, of some oil, fat or resin, with a salifiable base. When this base is potash, or soda, the soap is employed as a detergent in washing clothes; when an alkaline earth, or oxide of a common metal, as litharge, is the salifiable base, the compound is insoluble in water. Fats are composed of a solid substance, called *stearine*, and a liquid substance, called *elaïne.* When they are treated with a hot ley of potash or soda, their constituents react on one another, so as to generate the solid, pearly matter, *margaric acid,* and the fluid matter oleic acid, both of which enter into a species of saline combination with the alkali, while a third matter, the *sweet principle,* remains free. Common soap is therefore a mixture of an alkaline margarate and oleate, in proportions determined by the relative proportions of the two acids producible from the peculiar species of fat. Soap formed from vegetable oil is chiefly an *oleate.* All oils or fats do not possess, in an equal degree, the property of saponification. Those which saponify the best are the following: 1. oil of olives and of sweet almonds; 2. animal oils, as hog's lard, tallow, butter, and horse oil; 3. oil of colza, or rape-seed-oil; 4. oil of beech-mast and poppy-seed, when mixed with olive-oil or tallow; 5. the several fish-oils; 6. hempseed-oil; 7. nut-oil and linseed-oil; 8. palm-oil; 9. rosin. In general, the only soaps in commerce are those of olive-oil, tallow, lard, palm-oil and rosin. A species of soap can also be formed by the union of bees-wax with alkali; but this has no detergent application, being used only for painting in encaustic. The specific gravity of soap is in general greater than that of water. Its taste is faintly alkaline. When subjected to heat, it speedily fuses, swells up, and is then decomposed. Exposed to the air, in thin slices, it soon becomes dry; but the whole combined water does not leave it, even by careful desiccation on a sand-bath. Soap is much more soluble in hot that in cold water. This solution is instantly disturbed by the greater number of acids, which, seizing the alkali, either separate the fatty principles, or unite with them in a soapy, acidulous emulsion. The solution is likewise decomposed by almost all the earthy and metallic salts, which give rise to insoluble compounds of the oleic and margaric acids, with the salifiable bases. Soap is soluble in alcohol, and in larger quantity by the aid of heat. When boiling alcohol is saturated with soap, the liquid, on cooling, forms a consistent transparent mass, of a yellow colour. When it is dried, it still retains its transparency, provided the soap be a compound of tallow and soda. Marseilles white soap is composed of

Soda,	6·
Oil,	60·
Water,	34·

Castile soap of

Soda,	9·
Well-dried oily matter,	76·5
Water, with a little colouring matter,	14·5

The art of soap-making consists principally in knowing how to determine, from the appearance of the paste, and other circumstances, what kind of lixivium should be employed during each step of the operation. This is done, ordinarily, by observation and experience. The form and size of the bubbles, the colour of the paste, the volume of that which is thrown out on the side of the vessel, the consistence of the matter, and its disposition to swell, as well as the appearance of the steam—all furnish criteria by which to regulate the process. It sometimes happens that the paste, though apparently very firm, yet, when set in the cold air to harden, throws out much water, and is resolved into small grains, possessing little consistency. In this case, it is evident that the ley is in excess, and must be separated by means of common salt. Frequently, also, the paste becomes greasy, and the oil appears to separate from the soda. As this, in general, proceeds from the paste not being imbued with sufficient water to keep it in combination, it is necessary to add to it a portion of water, or very weak lixivium, to remedy this defect. Potash is employed as follows, in the manufacture of hard soap: A ley of this alkali, rendered caustic by quicklime, is used in the saponification, and to the soft soap which results is added common salt, or a kelp ley, which supplies abundance of muriate of soda. The muriatic acid goes to the potash, to form muriate of potash, which dissolves in the water, and is drawn off in the spent ley, while the soda enters into combination with the fat, and forms a soap, which, on cooling, becomes solid. Two tons of tallow, properly saponified, should yield three tons of marketable white soap. The adulterations most commonly practised on soap are the following: When the soap is made, much water is added, which renders it white. Frequently, pulverized lime, gypsum, or pipe-clay, are incorporated with it. The former of these frauds is readily discovered by the rapid loss of weight which the soap suffers on exposure to a dry air. The second is as easily detected by solution in alcohol, when the earthy matters fall down.

Soft Soaps. The compounds of fats or oils with potash remain soft, or at least pasty. Three kinds of these are known in commerce—the soaps from rape-seed, and other oleaginous seeds, called *green soaps, toilet soaps,* made with hog's lard, and *common soft soap,* made with animal fat. In the manufacture of the common and green soaps, the art consists in effecting the combination of the oil with the potash, without the soap ceasing to be dissolved in the ley; while, on the contrary, in the fabrication of hard soap, it is necessary to separate the soap from the ley, even before the saturation of the oil is accomplished. It contains more alkali than is absolutely necessary for the saturation of the oil. It is, in fact, a perfect soap, dissolved in an alkaline ley. It may readily be converted into hard soap by the addition of common salt. Toilet soaps, made with hog's lard and potash, should have as small an alkaline excess as possible. The finer soaps for the toilet are made with oil of almonds, with nut-oil, palm-oil, suet or butter. They are either potash or soda soaps, as they may be preferred in the solid or pasty states.

SOAP-BERRY *(sapindus).* These trees somewhat resemble the hickories or walnuts in their foliage, but are widely different in their fruit and botanical characters. The fruit is globular, as large as a cherry, enclosing a nut of a shining black colour when ripe. The pulp serves as a substitute for soap in washing linen, but is very apt to burn and destroy it, if used too frequently. The nuts are very hard, black, and finely polished, and are used for beads. Formerly, they were imported into Europe for waistcoat buttons, and were sometimes tipped with silver or other metals. They were very durable, as they do not wear, and seldom break. The whole plant, especially the seed-vessel, being pounded and steeped in ponds, rivulets or creeks, is observed to intoxicate and kill the fish. The wood is white, and full of a gum, in odour and taste resembling copal. The flowers are disposed in terminal and branching panicles, and the berries are pendulous.

SOAP-STONE; a species of steatite. The name is derived from its colour, and from the peculiar unctuous sensation which it imparts to the feeling. See *Steatite*.

SOBIESKI, John. See *John Sobieski*.

SOCAGE, or SOCCAGE, in its most extensive signification, seems to denote a tenure by any certain and determinate service. And thus old writers constantly put it in opposition to tenure by knight-service, which was uncertain. It is of two sorts; free socage, where the services are not only certain but honourable, and villein socage, where the services, though certain, are of a baser nature.

SOCCATOO; the present capital of the Fellatah (q. v.) dominions; lat. 13° 4′ 52″ N.; lon. 6° 12′ E. Captain Clapperton says it appeared to him the most populous town which he visited in the interior of Africa. The inhabitants are mostly Fellatahs. See Clapperton's *Travels*.

SOCIAL CONTRACT. See *Rousseau, Jean Jacques*.

SOCIETIES, LEARNED. See *Academies*.

SOCIETY ISLANDS; a cluster of islands in the South Pacific ocean, discovered by captain Cook, in 1769, and lying between lat. 16° and 18° S. and lon. 149° and 152° W. Some authorities limit the name to a group composed of the six small islands of Huahine, Raiatea, Tahaa (Otaha), Borabora, Tuhai (Toohooai) and Maurua, giving the name of Georgian islands to the group comprising Tahiti (Otaheite) and Eimeo, about fifty leagues to the south-east of the former. Tahiti, the largest island of the cluster, is about 100 miles in circumference, being upwards of thirty miles long, and twenty, where widest, broad. The population, estimated by Cook at 200,000, is said by Ellis not to exceed, at present, 10,000 souls, which is nearly half of that of the whole cluster. This great decrease of the population is probably in part owing to the practice of infanticide which formerly prevailed, and in part to the diseases introduced among the islanders by the licentiousness of their European visitors. The general reception of Christianity has been attended by the improvement of the moral and physical condition of the people, and the abolition of the cruel rites and debaucheries which were previously practised. The soil of these islands is generally fertile, yielding bread-fruit, cocoa-nuts, bananas, plantains, yams, jambo, arum or taro, sugar-cane, &c. The animals are swine, dogs, poultry, rats, ducks, pigeons, parroquets, and a few other birds. The inhabitants are described as tall and well made, affable and kind in disposition, and fond of music. The complexion of the islanders is olive, or reddish brown; the hair black, or dark brown, and rather coarse. The language of Tahiti was the first Polynesian language reduced to writing. This was done by the missionaries: and there are now, besides translations of the Scriptures, numerous other works, printed in the native language, which very nearly resembles that of the Sandwich islands. A singular institution prevailing in the Society islands, previous to the prevalence of Christianity, was the *areoi* society, many of the regulations and practices of which were of the most licentious and shocking description. The members of the society were not prohibited from marrying, but, in case they had offspring, they were required to put them to death. In 1797, eighteen missionaries from England were settled upon this island. During fifteen years, they laboured with very little success. In 1814, the number of those who, in Tahiti, had voluntarily renounced idolatry, and embraced Christianity, amounted to about fifty. Since that time, the efforts of the missionaries have been attended with great success, almost the whole of the inhabitants of this and the neighbouring islands having renounced idolatry and embraced Christianity.—See Ellis's *Polynesian Researches* (2 vols., 1829); Barrow's *Otaheite and Pitcairne's Island;* Stewart's *Visit to the South Seas*.

SOCINIANS. See *Socinus*, and *Unitarians*.

SOCINUS, Lælius, of the respectable family of the Sozzini, in Sienna, was born in 1525, and abandoned the science of jurisprudence, in which his ancestors had been distinguished, and to which he had himself devoted his youth, for the study of the Holy Scriptures and theology. Doubts concerning some of the dogmas of the Roman Catholic church induced him to visit Germany and Switzerland, where he became acquainted with the leading reformers. He passed nearly three years at Wittenberg, and studied the Oriental languages. He likewise visited France, England and Poland, and in the latter country formed connexions with other individuals of similar sentiments, but taught his doctrines in secret. Having become obnoxious to suspicion, he averted the danger which threatened him only by disguising his real sentiments. His unquiet life was terminated at Zurich, in 1562; but his opinions were adopted and promulgated by his nephew *Faustus*, born in 1539. The latter had been obliged to leave Sienna, from supicions of his entertaining heretical notions, as early as in his twentieth year, and had retired to Lyons. On the death of his uncle, he came into possession of the manuscripts of the latter, by the study of which he found his former opinions confirmed. He began to publish his views at Florence (where he lived several years at the court of the grand-duke), in anonymous writings; and he afterwards retired to Basle to avoid the persecutions of the Italian inquisition. His opinions were still more fully developed during a residence in Transylvania, and in Poland he had numerous adherents. The Unitarian societies in that country, although they agreed with him in some points of doctrine, yet differed so far on others, that they would not receive him into their communion. He formed, however, some small societies of followers there, but suffered persecution in that country, and the confiscation of his property in Italy. His death took place in Poland, in 1604. See *Unitarians*.

SOCK (*soccus*); a sort of low shoe worn by the Greeks, and also by the Roman women, who had them highly ornamented. They were likewise worn by comic actors, the buskin, or cothurnus, being used in tragedy. *Sock* is hence often used for *comedy*.

SOCRATES. In the instance of this great man, posterity has shown, in a striking manner, that true merit does not appeal to its decisions in vain. He who perished in the conflict with his own age, is now venerated as a noble model of wisdom and worth in thought and action, and as the true source of the most valuable results in philosophy attained by the noblest spirits of Greece. Socrates claims our highest respect alike for the powers of his highly cultivated mind, the purity of his sentiments, the excellence of his instructions, the extent of his influence, and the end of his godlike life. He was born B. C. 470. His father, Sophroniscus, was a statuary of little reputation, and his mother, Phænarete, a midwife. As his parents were in humble circumstances, it is not improbable that his father put him in the shortest way to gain a living by teaching him his own art, although there may be no truth in the story that the three Graces, at the entrance of the Acropolis of Athens, pointed out even in the age of Pausanias, were his work. Our accounts of his youth are very imperfect: but it may be confidently asserted that, notwithstanding the poverty of his father, he received a good education, according to the notions of his age and nation, and therefore learned music and gymnastics as they were then taught, and that his divine genius early impelled him to use all the means which his age and country afforded for acquiring information on the most important subjects of human knowledge. At that time the Sophists were perverting the heads and corrupting the hearts of the Grecian youth, and Socrates placed himself under the instruction of the most celebrated of these blind guides; but he soon abandoned the halls of these self-styled wise men, and resolved to obtain by his own reflection what others were unable to give him, and to penetrate by patient thought to true knowledge. He was deeply impressed by the inscription on the temple of Apollo, at Delphi: Γνωθι σεαυτον, Know thyself. Agreeably to this command, he began to study himself, to reflect upon the phenomena of his own mind, and to meditate on the destiny of mankind, and determined to devote his life to instructing his fellow citizens in their highest good, and making them wise, honest and pious. Like other great men, kindled by these divine thoughts, he believed himself commissioned by the Deity, and, to the close of life, cherished the idea that he was an ambassador of God. He was about thirty years old when he formed the resolution to devote himself entirely to the pursuit of divine and human knowledge, and withstand the perverters of science and morality. He now began to manifest a character entirely opposite to that of the Sophists. While they were distinguished by display and wealth, Socrates appeared in a poor cloak, which he wore at all seasons of the year, and was better dressed only at entertaiments or public festivals. He even disdained the use of shoes. He was, indeed, destitute of pecuniary means for procuring the conveniences of life; but it would have been easy for him to obtain them from his friends and disciples, if he had not aimed at the completest independence; and it is certain that he refused all the offers of his rich friends, so that his most virulent enemies never ventured to impeach his disinterestedness. Socrates was first an instructor of the people. He believed himself the ambassador of God to the citizens of Athens, as he himself declares in Plato's Apology. Hence he was occupied from the dawn of day in seeking persons whom he might instruct in all that is important to mankind in general, and to the private circumstances of each. He went to the public assemblies, and the most crowded streets; or entered the work-shops of mechanics and artists, and conversed with them on religious duties, on their social and political relations, on all subjects relating to morals, and even on agriculture, war, and the arts. He endeavoured to remove prevailing prejudices and errors, and to substitute right principles; to awaken the better genius in the minds of his hearers: to encourage and console them; to enlighten and improve men, and to make them really happy. It is manifest that such a course must have been attended with great difficulties. But the serenity of Socrates was undisturbed; he was always perfectly cheerful in appearance and in conversation. In the market place and at home, among the people, and in the society of those whom love of truth and virtue connected more closely with him, he was always the same. It cannot be doubted that a happy physical and mental temperament contributed to produce this equanimity. But it was, likewise, a fruit of self-discipline. He treated his body as a servant, and inured it to every privation, so that moderation was to him an easy virtue; and he retained in old age his youthful vigour, physical and mental. He was kind as a husband and a father, though his wife, Xanthippe, was a noted shrew. He viewed her as an excellent instrument of discipline; and we can only regret that we know nothing more of the manner in which he educated his three sons than what Xenophon, in his *Memorabilia*, has preserved of his conversation with Lamprocles, the eldest. He not only instructed his fellow citizens in their duties, but likewise set before them a perfect example. He was a zealous worshipper of the Supreme Being; and, from his care not to offend his weaker brethren, observed, with punctilious exactness, all the religious usages which antiquity and custom had consecrated. As a citizen, he discharged, with exemplary faithfulness, all his public duties. Three times he served in the army of his country; the first time when he was thirty-nine years of age, at the siege of Potidæa. Here he excelled his fellow soldiers in the ease with which he endured the hardships of a winter campaign, distinguished himself by his valour, saved the life of his friend Alcibiades, and resigned to that youth the prize of honour which was awarded to his own bravery. Seven years after this, he bore arms a second time, at Delium, and was the last to fly. 420 B. C., he marched, under Cleon, against Amphipolis. Thus, in aiming to perform all the duties of a good citizen, he did not refuse to engage in the humblest service of his country. His conduct was admirable, when, at the age of sixty-five years, he became a member of the council of five hundred. He rose also to the dignity of president, who, on the day of his holding office (no man was president but once, and that only for a single day), managed the popular assemblies, and kept the key of the citadel and of the treasury. Ten naval officers had been accused of misconduct, because, after the battle of Arginusæ, they had omitted the sacred duty of burying the slain, in consequence of a violent storm. Their enemies, finding the people disposed to acquit them, procured, by intrigue, the prorogation of several assemblies. A new assembly was held on the day when Socrates was president; and the citizens, instigated by bad men, violently demanded that sentence of death should be pronounced on all of the accused at once, contrary to law. But the menaces of violence were unable to bend the inflexible justice of Socrates; and he was able to declare, on his own trial, that ten innocent men had been saved by his influence. Socrates exerted himself particularly in leading inquisitive young men to the pursuit of truth and the formation of habits of thought. He was constantly attended by a circle of disciples, who caught from him the spirit of free inquiry, and were inspired with his zeal for the highest good, for religion, truth, and virtue. The succeeding schools of philosophy in Greece are, therefore, justly traced back to him; and he is to be regarded as the master who gave philosophical investigation, among the Greeks, its highest direction. Among his most distinguished disciples were Alcibiades, Crito, Xenophon, Antisthenes, Aristippus, Phædon, Æschines, Cebes, Euclid, and Plato. From the detached accounts given us by Xenophon and Plato, it appears that he instructed them in politics, rhetoric, logic, ethics, arithmetic, and geometry, though not in a systematic manner; he read with them the principal poets, and pointed out their beauties; he laboured to enlighten and correct their opinions on all subjects of practical prudence, and to excite them to the study of whatever is important to man. The circumstances of his being fettered by no school, and of his merely leading men to reflect for themselves, must have been of the best influence. Plato and Aristotle were more systematic; but to Socrates belongs the honour of having awakened the genius of Plato, and given philosophy its practical direction. Hence the ancients recognised a Socratic school; and the name of Socrates was esteemed, by subsequent philosophers, as one of their most venerable authorities. But his philosophy, both in form and matter, was peculiarly the fruit of his own researches. To make his instructions attractive, they were delivered, not in long lectures, but in free conversation, rendered interesting by question and answer. He did not reason before, but with his disciples, and thus exercised an irresistible power over their minds. He obliged them to think for themselves, and if there was any capacity in a man, it could not fail to be excited by his conversation. This method of question and answer is called the *Socratic method.* The fragments of his conversations, preserved by Xenophon, often leave us unsatisfied. Plato alone has transmitted to us the genuine spirit of this method; and he was, therefore, viewed by the ancients as the only fountain of the Socratic philosophy—a fact which has been too much disregarded by modern writers. The versatile genius of Socrates enabled him to adapt his instructions to the character of his hearers. If they were puffed up with their imaginary wisdom, he resorted to ingenious irony, and showed them, by their own contradictory answers, that they were destitute of true knowledge. When he entered into conversation with such men, his object often was, merely to show them their own deficiencies. Hence many of these conversations have little interest to a reader seeking after positive truth, particularly as Socrates turned against his opponents their own weapons, and often appeared as a Sophist. He proceeded very differently with persons unused to reflection, or too distrustful to rely on their own investigations. He met them with the utmost kindness, and let himself down to the humblest understandings, accommodating his instructions to their previous knowledge. He did not converse with them in pompous language, but resorted to images and arguments drawn from familiar objects. He strove to enlighten them by examples and by other means, which the resources of his comprehensive mind presented; and the more deeply the hearer penetrated into the spirit and meaning of his words, the more powerfully was he awakened and charmed. Like a spiritual midwife, as he playfully styled himself, he used to proceed with the young men, whose powers he wished to excite to action, so as to lead them inevitably to the truth; and, although he sought to effect this object by his interrogatory method, he intermingled longer discourses and explanations, into which he infused all the charms of his eloquence. Hence Alcibiades, in Plato's Banquet, bears the following testimony to his teaching: "When I heard Pericles, or any other great orator, I was entertained and delighted, and I felt that he had spoken well. But no mortal speech has ever excited in my mind such emotions as are kindled by this magician. Whenever I hear him, I am, as it were, charmed and fettered. My heart leaps like an inspired Corybant. My inmost soul is stung by his words as by the bite of a serpent; it is indignant at its own rude and ignoble character. I often weep tears of regret, and think how vain and inglorious is the life I lead. Nor am I the only one that weeps like a child, and despairs of himself; many others are affected in the same way." Socrates was, therefore, mighty in word. It is vain to seek for proofs of his eloquence in Xenophon, for the charm of oral delivery, the lofty inspiration of the moment, cannot be given to silent writing; and Xenophon does not seem to have intended to draw the true ideal of Socrates—not to say he was incapable of doing it. But in Plato we hear the genuine strains of the philosopher.

Socrates abandoned all inquiries concerning the origin of the universe and of the phenomena of nature, because he esteemed religion and practical morality more important. Astronomy and natural philosophy he by no means despised; but the want of accurate knowledge on these subjects in his age led him, perhaps, to confine their sphere within too narrow limits. He turned his attention to practical philosophy, which had been previously neglected, and, according to Aristotle, was the first to lay down general precepts of morality. In this view, it may well be said that he brought philosophy down from heaven to the abodes of men. Xenophon says, Socrates always conversed upon things relating to man's nature and condition; showed the difference between religion and impiety; explained in what the noble and ignoble, justice and injustice, reason and folly, courage and cowardice, consist; what constitutes a state, and what a statesman; spoke of the government of men, and what qualities are requisite in a governor, and other subjects, the knowledge of which he regarded important to a good man, and of which none but the mean-spirited are content to remain ignorant. All his inquiries took a practical turn, and he valued speculation and theory only as connected with practice; for the end of all knowledge, he affirmed, is virtue. Socrates was fully convinced of the existence of an all-ruling, almighty, wise, good, omniscient, and invisible being. The system of nature, and especially the admirable structure of the human frame, seemed to him a positive proof of a Creator. And as man is capable of thought, the same power, he argued, must exist in a still higher degree in the author of reason. The existence of the Deity is as little to be doubted, because he is neither visible nor tangible, as the existence of powers concealed from the senses, but known from their effects. He esteemed it rash to speculate upon the substance of this lofty Being, and deemed it sufficient to set in a clear light his spiritual nature. It is evident that he worshipped one God, as the Creator of the world and the Judge of mankind, because Xenophon represents him as speaking expressly, several times, of one God only, although in other places he speaks of gods, which he seems to have regarded as subordinate to the Supreme Being. To the good providence of that God he traced all human blessings, and maintained that the omniscient and omnipresent Deity knows every thing, and observes all the secret thoughts and actions of men. For this reason, he esteemed it a sacred duty for men to worship him with all their powers, complying, indeed, with the forms of religious service prescribed by the customs or laws of their country, but particularly striving to do his will in all things. Hence he sacrificed and prayed at the altars of his country's gods, both at home and in public, and believed in the revelation of the Divine Being by various sensible appearances. Such revelations he supposed to be made to himself by a demon or genius, which always attended him, warning him from this or that course of conduct. But his compliance with religious usages, consecrated by age or custom, did not prevent him from raising his voice against the abuses and prejudices connected with sacrificial worship. Man, he said, could not purchase, but must merit, the favour of God; and this could be effected only by a blameless life, which is the truest and best service of the Deity. Prayer he considered a necessary part of a virtuous life, and therefore taught his disciples the following petition: "Father Jupiter, give us all good, whether we ask it or not; and avert from us all evil, though we do not pray thee so to do. Bless all our good actions, and reward them with success and happiness." Socrates entertained no less elevated ideas concerning the human soul. He considered it certain that it is of divine origin, wholly distinct from every thing material, and connected with the Deity by reason and the power of thought. He did not deny the difference between it and the divine nature, but maintained that exercise and cultivation would improve the spiritual principle in man. To this cultivation he exhorted his hearers and friends with a godlike zeal. He declared the improvement of the mind to be the highest good of which man is capable. As the chief means, he recommended self-knowledge, and he esteemed those as consummately foolish who knew every thing but themselves. Socrates distinguished, also, a sensible and a reasonable soul. Of the immortality of the soul he was firmly convinced. This doctrine he inferred from its native dignity; likewise from the supposition that the soul gives life to the body; from the phenomena of dreaming; from the opinion of former ages, and from the nature of the Divine Being from whom the soul proceeds. Hence he viewed death to the good as merely a transition to a better life, and spoke of his hopes with affecting certainty and admirable clearness. His pure soul was enraptured with the thought of meeting the virtuous men of earlier ages. He feared not to stand before the holy Judge of the world; and, in the regions of the blessed, he hoped to find unmingled happiness, with the consciousness of having laboured after truth and struggled for virtue. The images and terms by which he describes the wretchedness of the vicious are terrible. Souls which have become diseased by wickedness, covered, as it were, with stains and ulcers, in consequence of their licentiousness, effeminacy, or unlawful desires, and stamped with the hateful impress of perjury and injustice, are plunged into abodes of pain, to be reformed by punishment, or to serve as examples to others. This account of the effect of vice on the substance of the soul, though all plainly symbolical, surpassed in fearful distinctness, all that had been said on the subject. Socrates founded his morality on his religion. God wishes men to be virtuous, and, therefore, they should act well. The performance of duty is the only way to happiness. Although he did not exclude the desire of happiness from the motives to virtue, he was far from representing it as the only motive. He thus made an intimate connexion between religion and virtue. The native dignity of virtue he painted in the most delightful colours. The dominion over the senses he declared to be the highest state of freedom: he said that virtue only was true wisdom, and that vice was insanity. He exhibited no regular system of morals; but this principle may be considered as lying at the foundation of his views of morality: Do what the Deity commands thee. The true interpreter of this command he considered to be a moral sense which distinguishes between justice and injustice, magnanimity and meanness—in short, between virtue and vice. He did not entertain the idea of moral freedom. On the contrary, he maintained that every man who is acquainted with good practises it, because every one acts agreeably to his knowledge. Virtue he declared to be the striving to make one's self and others as perfect as possible. All virtue he reduced to two heads, temperance and justice; the former embracing all the duties which man owes to himself, and the latter those which he owes to his fellow men. The temperance of Socrates included dominion over every sensual impulse. This self-government he regarded as the basis of all other virtues, which, by its aid, will unfold themselves from the promptings of the moral nature, and the increasing knowledge of good. The beneficial influence of this virtue he describes with a genuine inspiration, and draws a frightful picture of excess. His representation of a just man, one who faithfully performs all his duties to God and man, is highly interesting. Injustice he held to be a great evil. He declared that justice was due even towards enemies; and that a man should never transgress the laws of his country, however unjustly they might be administered. His views of friendship, society, conjugal affection, and the pleasures of life, were excellent. He maintained in every thing the golden mean. All his precepts were equally removed from excessive rigour and pernicious laxness; and whoever follows them will be a good man. To his precepts was added his example, so superior to all reproach, that Xenophon, his friend and disciple, in his *Memorabilia*, says none ever saw him perform a vicious or unworthy action, and, at the close of his work, draws the following picture of him: "All the friends of virtue who knew Socrates are still filled with sorrow for his loss; for they found him the best guide to virtue. He was so pious that he did nothing without the advice and consent of the gods; so just that he never injured, in any way, the happiness of any man, but, on the other hand, did the most important services to those who were connected with him. He was so temperate that he never preferred the agreeable to the useful; of so clear a mind that he never erred in the distinction of good and evil, and all by his own unaided strength. He was, besides, so able in his definitions and illustrations of these subjects, in his judgment of men, in confuting error and recommending virtue and uprightness, that I esteem him the best and the happiest of mortals." Such a man has been charged by some with being guilty of a shameful passion, but it is unnecessary to refute this accusation; it is more important to explain the circumstances and grounds of his condemnation.

The last part of his life fell in that unhappy period when Athens had sunk into anarchy and despotism, in consequence of the unfortunate result of the Peloponnesian war. Morality and justice are always disregarded when the government of a state is dissolved. This was the case in Athens. The dominion of the thirty tyrants had, indeed, been overthrown by Thrasybulus; but, like the ocean after a storm, Athens was still unsettled, and amid the general immorality, hatred, envy and malice found opportunities to execute their purposes. Melitus, a young tragic poet of no merit, Lycon, a public orator, and Anytus, a tanner and politician, were the accusers of Socrates, and were listened to the more readily, as he had offended the people by the freedom with which he had expressed his dislike of an ochlocracy. The charges of introducing new gods, of denying the ancient divinities of the state, and of corrupting the youth, were brought, not before the Areopagus, but before the popular tribunal in the Heliæa. The accusations were supported by perverted statements of the language of Socrates, by expressions detached from the connexion which modified them. But these, and the fact that the tyrant Critias, and the public enemy Alcibiades, were his disciples, were plainly not a valid cause for his condemnation. Socrates, conscious of his moral dignity, disdained to make a laboured defence of his character. He neither feared death, nor respected his judges. Moreover, he felt confident that a long life, spent under the eye of the judges and the people, was the strongest proof of his innocence. Briefly, and with a noble dignity, he showed the groundlessness of the charges, and noticed his own deserts. Several of his blind and wicked judges took offence, and he was condemned by a majority of three voices. But, when they left him to choose the mode of punishment, and Socrates declared that, instead of deserving death, he merited a place in the Prytaneum, as a public benefactor, the furious populace, thinking themselves insulted by such a declaration, condemned him to drink poison. He consoled his afflicted friends, and reminded them that, from the day of his birth, nature had pronounced sentence of death upon him. Religious and moral feeling, and the heavenly power of a pure conscience, still triumphed within him. On the day when he was thrown into prison, the sacred galley sailed from Athens for Delos, and, in conformity with an ancient law, the execution of the sentence was deferred till its return, thirty days—an important delay for the philosopher and his disciples. Every morning his friends assembled in his apartment, and he conversed with them as he had been wont to do. He encouraged them in the path of virtue, instructed them in the subjects of his investigations, and proved to them, by his own example, that obedience to his precepts produced real happiness. In his solitary hours, he composed a hymn to Apollo, and versified several of the fables of Æsop. There was a striking contrast between the resignation of Socrates and the grief of his friends, at the thought of their irreparable loss. We may well pardon them for the projects which they formed for his escape. Simmias of Thebes offered to bribe the keeper; but they could, of course, do nothing without the consent of Socrates; and, from his known principles, it was probable that he would not listen to their plan. But they determined to make the attempt. Crito, the old and tried friend of Socrates, undertook to persuade him to comply with their wishes. Early in the morning of the last day but one, he visited him for this purpose. The good man was still asleep. Crito sat down softly by his bed, and waited till he awoke. He then informed him of the unanimous request of his friends, urging every motive which the peculiar circumstances of Socrates suggested, especially the care of his family, to persuade him, if possible, to save his life. Socrates permitted his friend to finish, and thanked him for this proof of his affection, but declared that flight was wholly irreconcilable with his principles. Plato's dialogue, entitled Crito, records this conversation, and is one of the most pleasing performances of that great master. It inspires the most profound admiration of Socrates, who adhered to his lofty principles with unshaken firmness on the brink of the grave, and, notwithstanding the injustice of his condemnation, could not be persuaded to violate his duties as a citizen. At length the fatal day dawned on which Socrates was to drink the poison. His family and friends assembled early, to spend the last hours with him. Xanthippe, his wife, was much affected, and showed her grief by loud cries. Socrates made a sign to Crito to have her removed, as he wished to spend his last moments in tranquillity. He then talked with his friends first about his poem, then concerning suicide, and lastly concerning the immortality of the soul. He spent the greater part of the day in these elevated meditations. He spoke with such animation of the hopes inspired by his faith, that his friends almost viewed him as a glorified spirit. The approach of twilight at length admonished him that the appointed hour had arrived. He asked for the cup; and, when he took it in his hand, his friends were so overcome with grief, that they burst into tears and loud lamentations. Socrates alone was calm. He then drank the hemlock slowly, and consoled his friends, as he walked up and down the apartment. When it became difficult to walk, he lay down upon the couch, and, before his heart ceased to beat, exclaimed, "My friends, we owe a cock (the emblem of life) to Æsculapius." After he had said these words, he covered himself with his cloak, and expired, in the seventieth year of his age (B. C. 400). Soon after his death, the Athenians acknowledged his innocence, and regarded the misfortunes of the state as a judgment for their injustice towards him. They reversed his sentence, put Melitus to death, banished his other accusers, and caused a brazen statue to be erected to his memory by Lysippus. The person of Socrates was not prepossessing. Plato says he had the head of a Silenus; but mental grace ennobled him, and attracted the virtuous.—See Wegger's *Socrates* (Rostock, 1811, 2d edition), and Delbrück's *Socrates* (Cologne, 1816), both in German; see, also, Mitchell's introduction to his translation of Aristophanes; Cumberland's *Observer*, and Cousin's *Nouveaux Fragments Philosophiques*.

SODA; formerly called the *mineral alkali*, because, under the name of *natron*, it is found native in the mineral kingdom. It is usually obtained from the incineration of marine vegetables, of which different species afford it in different quantities and states of purity. The various kinds of *fuci* afford the impure alkaline product known in commerce by the name of *kelp* (q. v.): the genera *salsola* and *salicornia*, in particular, furnish the pure *barilla* (q. v.). These products contain much foreign matter: the soda is combined with the carbonic acid, and with that are associated muriate and sulphate of soda, a small portion of hydriodate of potash or soda, charcoal, lime, magnesia, silica and alumina. The origin of the soda in these cases is undoubtedly from the muriate of soda, with which such plants are supplied from their situation; since it has been ascertained concerning some of them, that, when transplanted to inland situations, they cease to yield soda, and only afford potash. It is usually from barilla, that soda is procured. The barilla, in powder, being lixiviated with boiling water, the solution, on evaporation, affords crystals of carbonate of soda. To remove the acid, the same process is employed as in procuring potash. The salt is dissolved in twice its weight of water, and filtered through slacked lime. The lime abstracts its carbonic acid, principally: to obtain the soda perfectly pure, however, it must be submitted to the action of alcohol. Soda thus obtained is in the state of a solid white mass. In its driest state, it contains, like potash, a portion of combined water, or is a hydrate, consisting of soda 32, and of water 9. Soda is possessed of all the alkaline properties in common with potash. It is acrid, and caustic, and abundantly soluble in water. It changes the vegetable colours to green, is powerful in neutralizing the acids, and in rendering saponaceous the animal and vegetable oils. It is acted on by sulphur and phosphorus, but does not itself act so powerfully on the metals, or the earths, as potash. It combines with the latter, however, by fusion, and forms, with silica, in particular, a very perfect glass. The basis of soda is a peculiar metal, called *sodium*, discovered by Sir H. Davy, in 1807, a few days after his discovery of potassium. It may be procured in exactly the same manner as potassium, by electrical or chemical decomposition of the pure hydrate. It requires, however, a somewhat higher degree of heat, and a greater voltaic power, to decompose soda than potash. Sodium is a white metal, having a colour intermediate between those of silver and lead. At the common temperature of the air, it is solid, and very malleable, and so soft that pieces of it may be welded together by strong pressure. It retains its softness and malleability at the temperature of 32°. It is an excellent conductor of electricity; specific gravity 0·972. It melts when heated to the temperature of 194°, and requires a much higher temperature to be volatilized than potassium. Its affinity for oxygen is similar to that of potassium. When exposed to the air, it speedily absorbs oxygen, and becomes converted into soda. When thrown into water, that liquid is rapidly decomposed; its hydrogen escapes in the state of gas, while its oxygen converts the sodium into soda. When projected on hot water, it burns with a yellowish flame, whereas that of potassium is reddish. Soda is composed of sodium 100 and oxygen 33·3. Another compound of sodium and oxygen is the *peroxide of sodium*. It is formed by heating sodium in oxygen gas. It is of a deep orange colour, very fusible, and a non-conductor of electricity. When acted on by water, it gives off oxygen, and the water becomes a solution of soda. Only one combination of sodium and chlorine is known. This is formed when sodium is introduced into chlorine gas; the sodium takes fire, and is converted into a *chloride of sodium*. It may be formed, likewise, by passing a current of chlorine gas over soda, previously heated to redness. The soda gives out its oxygen in the state of gas, and is converted into a chloride. It is composed of chlorine 4·5 and sodium 3. It is the important substance known under the name of *common salt*, or *muriate of soda*. Vast beds of it exist in the bowels of the earth, whence it is quarried under the name of *rock salt;* and sea-water contains about 3·5 per cent. of it, from which it is easily procured by evaporation. In the latter case it is less pure than in the former, requiring some care in the evaporation, in order to separate it from the salts with which it is contaminated. In warm climates, it is obtained by spontaneous evaporation; the sea-water is admitted into shallow trenches by the sea-side, and spread over an extensive surface; as it becomes concentrated by evaporation, the liquor is removed, by sluices, from one trench to another, until at length the salt crystallizes spontaneously, and nearly pure. In colder climates, the sea-water is evaporated in large boilers by the application of heat, and the evaporation is carried so far, that the salt concretes on the surface of the boiling liquor in small crystals. As obtained by this mode, small portions of muriate of magnesia and sulphate of magnesia adhere to it, which somewhat impair its antiseptic properties, and, at the same time, render it slightly deliquescent. Rock salt, as it comes from the mine, sometimes requires to be dissolved and evaporated, in order to free it from the oxide of iron and clay with which it is often blended. On account of these impurities, it presents, occasionally, a variety of colours, such as yellow, flesh-red, and blue. Its depositories are transition rocks which are in connexion with gypsum and sandstone. Mines of salt are found in Poland, England, Russia, Spain, and the East Indies. The most remarkable deposits, however, are those of Poland and Hungary. That at Wiliczka, near Cracow, in Poland, is supposed to contain salt enough to supply the whole world for many centuries, although it has been wrought for six or seven hundred years. It has been explored to an astonishing depth; and its subterranean regions are excavated into houses, chapels, and other ornamental forms, the roof being supported by decorated pillars of salt. When illuminated by lamps and torches, they are described as objects of great splendour. The purity of rock salt may be seen from the following analysis by doctor Henry:—

Chloride of sodium, . .	983·35
Sulphate of lime, . . .	6·50
Chloride of magnesium, . .	·19
Chloride of calcium, . . .	·06
Undissolved matter, . . .	10·00

Common salt, when artificially prepared, or in its state of greatest purity, has the following properties:—It is white; crystallizes in cubes (rarely in octahedrons); has a specific gravity of 2·12 to 2·25. 100 parts of water

at 57° dissolved 36 of salt.
at 140 " 37 do.
at 229½ " 40·38 do.

When heated, it decrepitates, and at a red heat melts into a liquid without undergoing decomposition. In a high temperature it may be sublimed. It contains no water of crystallization.

Sodium combines readily with sulphur and phosphorus, presenting similar phenomena to those presented by potassium. The *sulphurets* and *phosphurets* of sodium are less inflammable than those of potassium. Potassium and sodium combine with great facility, and form peculiar compounds, which differ in their properties according to the proportions of the constituents. By a small quantity of sodium, potassium is rendered fluid at common temperatures. A little potassium, on the other hand, destroys the ductility of sodium, and renders it very brittle.

Salts of Soda.—In general, the salts of soda are much more soluble in water than those of potash. Many of the salts of the latter alkali contain no water of crystallization; but most of the salts of soda contain a great deal. One of the easiest methods of ascertaining whether the base of a given salt be soda, is to determine the shape of the crystals which it forms. If it does not shoot into regular crystals, separate the acid by means of sulphuric or nitric acid, and let the newformed salt crystallize. Sulphate and nitrate of soda are easily recognised by the figure of their crystals.—*Sulphate of soda.* This salt was discovered by a German chemist, named Glauber, and for that reason is commonly known under the name of *Glauber's salt.* It may be procured by saturating soda with sulphuric acid, but is more usually obtained by decomposing common salt with sulphuric acid in order to procure muriatic acid. It crystallizes with great readiness in the form of an oblique rhombic prism; specific gravity, 2·2 to 2·3. Its taste at first resembles that of common salt, but soon becomes disagreeably bitter: 100 parts of water, at 60° Fahr., dissolve 48·6 parts of crystallized salt. When exposed to the air, it loses great part of its water, and falls into a white powder, but is not otherwise altered. In this alteration, it loses about 56 per cent. of its weight. When exposed to heat, it first undergoes the watery fusion, then its water is evaporated, it is reduced to a white powder, and in a red heat it melts. (For the solubility of Glauber's salt, see the article *Salt.*) As a purgative, the use of this salt is very general; and it has been employed to furnish soda. It has been employed also in the art of glass-making: equal parts of carbonate of lime, sand, and dried sulphate of soda, produce a clear, solid, pale-yellow glass. *Bisulphate of soda* may be obtained by dissolving sulphate of soda in dilute sulphuric acid, and, after concentrating it sufficiently, setting it aside. The crystals are oblique, four-sided prisms, resembling pretty nearly, in dimensions, those of the sulphate. They do not deliquesce in the air. Its taste is very acid. It may be exposed to a red heat without losing its excess of acid. It is more than twice as soluble as Glauber's salt.

Nitrate of soda is obtained by adding dilute nitric acid to soda, or by mixing nitrate of lime and sulphate of soda together, filtering the solution and evaporating. The crystals are transparent, and have the form of the rhombic prism. Specific gravity, 2·0. It has a cool, sharp taste, and is more bitter than nitre. One hundred parts of water, at 32° Fahr., dissolve 80 parts of this salt, whereas at 50°, only 22·7 parts are dissolved. As it attracts moisture when exposed to the air, it does not answer for the manufacture of gunpowder. It is sometimes used in fire-works, on account of its communicating a fine orange colour to combustibles while burning. It contains no water of crystallization, but usually about three per cent. of water, mechanically lodged between the plates of the crystals. Its constituents are, nitric acid 6·75 and soda 4·0. An immense deposit of it, extending for many leagues, is said to exist in the desert of Atacama, in Peru. Attempts were made, some years ago, to introduce it into commerce; but they did not succeed. It might be used with advantage for the manufacture of nitric acid, and probably, also, in that of sulphuric acid.

Carbonate of soda.—This salt has been also long known, as well as common salt, above described. It is obtained from the lixiviation of marine plants, which do not afford it in purity, but associated with other salts: to separate it from these, the solution requires to be evaporated at a low heat, skimming off the crystals of common salt as they form on its surface. Of late years, large quantities of carbonate of soda have been manufactured from common salt; the consequence of which is, that it may now be obtained at one third of its former cost; and it is taking the place of potash in those manufactories that require an alkali. The process followed in Great Britain is to convert common salt into sulphate of soda by means of sulphuric acid. The sulphate of soda is heated with sawdust, or small dross of pit-coal, by which it is converted into sulphuret of sodium. Sometimes the sulphur is got rid of by means of lime, but more commonly by roasting the sulphuret, so that air from a coal fire passes through it. The sulphur is gradually dissipated, and the sodium converted into carbonate of soda. The matter thus treated is dissolved in water, and subjected to two successive crystallizations in open iron coolers. By this process beautiful crystals of carbonate of soda are obtained. They in general contain about one half per cent. of sulphate of soda. The crystals are large, frequently eight or nine inches long, and are rhombic prisms with dihedral summits. Its taste is similar to that of the carbonate of potash, but less caustic. Its specific gravity is 1·62. It dissolves in rather less than its weight of boiling water, so that, when dissolved in such water, it crystallizes as the solution cools. When exposed to the air, it very soon effloresces, and falls to powder. When heated, it undergoes the watery fusion; indeed, the soda of commerce sometimes contains so much water of crystallization, that, when once melted, it remains permanently liquid. If the heat be continued. the water gradually evaporates, and the salt becomes dry. In a red heat, it melts into a transparent liquid. A very violent heat drives off a part of the acid. It melts rather more easily than carbonate of potash, and for that reason it is preferred by glass manufacturers. Its constituents are,

Carbonate acid,	2·75
Soda,	4·00
Water,	11·25
	18.

The *trona*, found in the province of Sukena, near Fezzan, in Africa, and which occurs in hard, striated masses, of such firmness that the walls of Cassar, a fort now in ruins, are said to have been constructed of it, differs from the carbonate of soda in the proportion of its constituents. It is called by doctor Thomson a *sesquicarbonate of soda.* It consists of

Carbonic acid,	4·125
Soda,	4·00
Water,	2·25
	10·375

It may be formed artificially by exposing the common carbonate of soda to an atmosphere of carbonic acid gas, and is largely manufactured for the soda-water makers, being sold in the condition of a white powder. Its taste is alkaline, but much milder than the common carbonate: specific gravity, 1·98.

Bicarbonate of soda.—This salt is obtained with ease by suspending a solution of common carbonate of soda over a brewer's fermenting tun during the fermentation of beer. It crystallizes in oblique rectangular prisms. The taste is feebly alkaline. It consists of

Carbonic acid,	5·5
Soda,	4·
Water,	1·125
	10·625

Phosphate of soda is prepared by saturating phosphoric acid (obtained from burned bones) with carbonate of soda, and setting the concentrated solution aside to crystallize. The crystals are oblique rhombic prisms, of about 67° 50′: taste saline and strong. It effloresces with great rapidity when exposed to the air, becoming white and opaque. It is readily soluble in water. It consists of

Phosphoric acid,	4·5
Soda,	4·
Water,	14·625
	23·125

As the taste of this salt is simply saline, without any thing disagreeable, it is much used as a purgative, chiefly in broth, in which it is not distinguishable from common salt. It is also employed by the chemist in assays of minerals with the blowpipe.

Borax, or *biborate of soda.*—This salt is supposed to have been known to the ancients, and to be the substance denominated *chrysocolla* by Pliny. At any rate, it is mentioned by Geber as early as the seventh century, under the name of *borax.* It is brought from the East Indies in an impure state, under the name of *tinkal*, enveloped in a kind of fatty matter, now known to be a soap, with soda for its base. When purified, it takes the name of *borax.* When pure, it presents itself in large hexagonal or octagonal crystals, of which two sides are much broader than the others. It is white and transparent; specific gravity 1·74. It converts vegetable blues to green. Its taste is sweetish and alkaline. It is soluble in twenty times its weight of water, at the temperature of 60°, and six times its weight of boiling water. When exposed to the air it effloresces slowly and slightly. When heated, it swells, loses about four tenths of its weight, becomes ropy, and then assumes the form of a light, porous, and very friable mass, known by the name of *calcined borax:* in a strong heat, it melts into a transparent glass still soluble in water. Borax consists of

Boracic acid,	6
Soda,	4
Water,	9
	19

Large quantities of borax are made in Great Britain from boracic acid imported from Tuscany. Borax was formerly employed in medicine as a sedative, and is still used to form a gargle. Its great utility, however, consists in its application as a flux in soldering, and in the fusion of siliceous stones for the formation of pastes, or artificial gems, and for the glazing of pottery.

SODALITE; a name originally given by doctor Thomson to a mineral discovered in West Greenland, by Sir Charles Gieseke. It is crystallized in regular dodecahedrons, and also occurs massive; colour green, translucent; hardness about that of feldspar; specific gravity 2·37. It was found by doctor Thomson to consist of silex 38·5, alumine 27·48, lime 2·7, oxide of iron 1·, soda 25·, muriatic acid 3·, volatile matter 2. This mineral has since been found in transparent crystals, and crystalline masses, among the lava of Vesuvius. With the sodalite, mineralogists now associate several substances formerly believed to be distinct, but whose principal differences are confined to colour and mechanical composition: these minerals are the following:—*Haüyne, Lapis-lazuli, Saphirin, Spinellan, Nosin*, and *Ittnerite.*

SOEMMERING, Samuel Thomas von, M. D., born in 1755, at Thorn, son of a physician, was a distinguished German naturalist. He passed the last years of his life at Frankfort on the Maine, where he died, March 2, 1830. He distinguished himself by his writings—*De Basi Encephali et Originibus Nervorum Cranio egredentium* (Göttinggen, 1778, 4to.); *De Corporis Humani Fabrica* (Frankfort on the Maine, 1794, 4 vols.); *Tabula Sceleti Feminini*, with descriptions (Frankfort, 1797, et seq.); and *Abbildungen des menschlichen Auges* (Frankfort, 1801, et seq.), &c. Soemmering has rendered many services to science.

SOFEES, or SOPHIS; the professors of Sufism. (q. v.)

SOFFITA, in architecture; any timber ceiling, formed of cross beams, or flying cornices, the square compartments or pannels of which are enriched with sculpture, painting, or gilding.

SOFISM. See *Sufism.*

SOHO; a celebrated manufactory of Messrs Boulton and Watt, near Birmingham, established in 1764. The construction of steam engines, and other heavy iron machinery, is here carried to great perfection. A coining mill, erected in 1788, works eight machines, and is capable of striking between 30,000 and 40,000 pieces of money in the space of an hour. The impression on both sides is received from one blow, and the machine itself disposes each piece, and removes it after it has received the stroke.

SOILING, in agriculture; the practice of supporting animals of various kinds, in the summer season, with green food of different sorts, cut daily, and given to them in racks, in the houses, stalls, or yards, instead of sending them to the fields.

SOISSONS; a city of France, in the department of the Aisne (Isle de France), sixty miles north-east of Paris; population, 7765. It is an episcopal see, and contains a cathedral, a royal college, twelve churches, &c. Soissons was the residence of the early Frankish kings, and before the revolution, it was the capital of a district, called *Soissonnais.* It was anciently called *Noviodunum*, and afterwards took the name of *Suessiones*, and *Augusta Suessionum*, from the people.

SOLAMINE; a substance which M. Peletier has procured from the *solanum mammosum* of the Antilles. It is also found in the berries of the *S. nigrum*, as well as in the leaves and stems of the *S. dulcimara.* To obtain it, ammonia is poured into the filtered juice of the berries, when a grayish matter falls down, which is to be collected on a filter, washed, and treated with boiling alcohol. The solamine precipitates from this by evaporation. It is an opaque, white, somewhat pearly-looking powder; without smell; very bitter; fusible below 212 Fahrenheit; decomposable at a higher temperature; insoluble in water, ether, oil of olives, and essence of turpentine; but very soluble in alcohol. It combines with the acids, forming uncrystallizable salts. It is eminently emetic.

SOLAR (from the Latin *sol*); any thing belonging to the sun.

SOLAR DAY. See *Solar Time.*

SOLAR MICROSCOPE. See *Microscope;* also *Optics.*

SOLAR PARALLAX. See *Sun.*

SOLAR SPOTS. See *Sun.*

SOLAR SYSTEM. Modern astronomy (see the article *Astronomy*), has elevated itself to the notion, that each fixed star is a sun, which we may suppose, according to the law of analogy, accompanied by a system of planets, so that each star may be the centre of a solar system. But in the narrower and most common sense of the phrase, *solar system* signifies our sun, with the planets, moons, and comets that revolve round it. The planets are, Mercury, Venus, Earth, with one moon; Mars, Vesta, Juno, Ceres, Pallas, Jupiter, with four moons; Saturn, with seven; and lastly Uranus, or Herschel, with six moons already known, and probably others undiscovered. All these planets, accompanied by their moons, move, as do also the comets, in elliptical orbits, round the sun, which is situated in a focus common to all of them, and, by his mighty power of attraction, retains them in their orbits. (See *Central Forces.*) The moons also describe elliptic orbits around the primary planets, with which, at the same time, they revolve around the sun. Moreover, the planets all have a rotation on their own axes, which, together with the inclination of these axes towards the plane of the orbits, and their continuance in this situation (*parallelism*), leads to the idea that all these planets are inhabited by beings endowed with sensation, for whose use these two arrangements seem to have been established. The discoveries of astronomy (e. g. the circumstance, but lately made known by Laplace, that the moons of Jupiter are never all eclipsed at the same time, so that the nights of that planet are never entirely destitute of light) seem to confirm this idea. We can touch upon only a few of the phenomena of our solar system. One of these is the admirable regularity in the distribution of the planets in the heavens. Before the discovery of the four new planets—Ceres, Vesta, Juno, and Pallas—it had been ascertained that the distance of the then known planets from the sun increase according to the following series:—4; 4+3; 4+2·3; 4+16·3; 4+32·3; 4+64·3. In this series, a member (4+8·3) was wanting between the members 4+4·3 and 4+16·3, corresponding to Mars and Jupiter, which circumstance gave rise to the supposition of the existence of an undiscovered planet at the above mentioned distance from the sun—a supposition which has been confirmed by the discovery of the four new planets. Another remarkable circumstance, which indicates a similarity between our earth and the other planets, is the flattening (q.v.) of Jupiter at the poles. The flattening of the earth is ascribed to the original softness of the mass composing it, which yielded to the centrifugal force of rotation. As Jupiter is subject to a very quick rotation, the flattening, supposing this planet also to have consisted originally of a soft mass, would naturally be very great, which late observations have proved to be the case. (For the historical information belonging to this subject, see the article *Copernicus* and *Kepler.*) The following tabular view presents some of the principal points connected with our solar system:

The circumference of the earth is		25,000 miles.
" surface	"	196,000,000 square miles.
" cubic contents	"	170,195,852,160 cubic miles.

Planets.	Sidereal Revolution.		Rotation.			Dist. from the Sun.	Cubic Contents.
	Y.	D.	D.	H.	M.	Miles.	Earth = 1.
Sun, - -			25	14			1,300,000.
Mercury, - -		88	1		5·5	37,000,000	1·18th.
Venus, - -		224·75		23	22	68,000,000	4·5ths.
Earth, - -	1		1			96,000,000	1.
Its moons, -		27·5	27·33			From Earth. 240,000	1·50th.
Mars, - -	1	322	1		39	143,000,000	1·5th.
Vesta, - -	3	224	Not known,			225,000,000	Very small.
Juno, - - -	4	131	—			254,000,000	Less than Ceres.
Ceres, - -	4	220	—			263,000,000	Half size of Pallas.
Pallas, - -	4	221	—			263,000,000	Almost as large as our Moon.
Jupiter with four moons, - -	11	314		9	56	490,000,000	1281
Saturn with seven moons, - -	29	169		10	16	900,000,000	928.
Uranus with six moons, - -	84	9		7		1800,000,000	1·3.

See Laplace's *Exposition du Système du Monde* (4th ed., Paris, 1813); Hassenfratz's *Cours de Physique Céleste ou Lecons sur l'Exposit. du Système du Monde* (Paris, 1803, with engravings). A very full tabular view of the solar system is contained in Littrow's Popular Astronomy (in German, Vienna, 1825, 2 vols., with engravings).

SOLAR TIME. The earth revolves, at the same time, on its own axis, and round the sun. During one rotation on its axis it advances about 1° in its orbit, and must, therefore, after the completion of a rotation, turn as much more as this advance, before the sun can come again to a given meridian. The time, which, in this way, passes between two successive culminations of the sun, is generally called a *solar day.* But the rapidity of the earth's advance in its orbit, is different at different times: at one period it passes through a larger portion of its orbit in a given time than at others, so that the solar days cannot be equal. Another circumstance, dependent upon the inclination of the axis of the earth to the plane of the ecliptic, is also to be taken into account. The apparent solar time, therefore, is distinguished from mean solar time, which has reference to an imagined uniformity, in the progress of the earth round the sun, and supposes the axis of the earth to be perpendicular to the plane of the ecliptic. Sun-dials show the apparent solar time; watches, and other time pieces in common use, only the mean solar time. The difference between the two is called *equation of time* (q. v.) The following table shows what time watches and clocks ought to indicate on the first of every month, when the sun-dial indicates twelve o'clock:—

				Min.	Sec.
On the 1st of	January,	12	o'clock,	3	48
—	February,	12	—	13	58
—	March,	12	—	12	46
—	April,	12	—	4	8
—	May,	11	—	56	59
—	June,	11	—	57	18
—	July,	12	—	3	14
—	August,	12	—	5	58
—	September,	11	—	59	58
—	October,	11	—	49	49
—	November,	11	—	43	46
—	December,	11	—	49	9

Solar time is to be distinguished from sidereal time. (q. v.)

SOLDERS consists merely of simple or mixed metals, by which alone metallic bodies can be firmly united with each other. In this respect, it is a general rule, that the solder should always be easier of fusion than the metal intended to be soldered by it. Next to this, care must also be taken that the solder be, as far as is possible, of the same colour with the metal that is to be soldered. For the simple solders, each of the metals may be used, according to the nature of that which is to be soldered. For fine steel, copper and brass work, gold and silver may be employed. In the large way, however, iron is soldered with copper, and copper and brass with tin. The most usual solders are the compound, which are distinguished into two principal classes, viz., hard and soft solders. The hard solders are ductile, will bear hammering, and are commonly prepared of the same metal with that which is to be soldered, with the addition of some other, by which a greater degree of fusibility is obtained, though the addition is not always required to be itself easier of fusion. Under this head comes the hard solder for gold, which is prepared from gold and silver, or gold and copper, or gold, silver, and copper. The hard solder for silver is prepared from equal parts of silver and brass, but made easier of fusion by the admixture of one sixteenth of zinc. The hard solder for brass is obtained from brass mixed with a sixth, or an eighth, or even one half of zinc, which may also be used for the hard solder of copper. It is sold in the shops in a granulated form, under the name of *spelter solder*. The soft solders melt easily but are partly brittle, and therefore cannot be hammered. Of this kind are the following mixtures:—tin and lead in equal parts; of still easier fusion is that consisting of bismuth, tin and lead in equal parts; one or two parts of bismuth, of tin and lead each one part. In the operation of soldering, the surfaces of the metal intended to be joined must be made very clean, and applied to each other. It is usual to secure them by a ligature of iron wire, or other similar contrivance. The solder is laid upon the joint, together with sal-ammoniac and borax, or common glass, according to the degrees of heat intended. These additions defend the metal from oxidation. Glaziers use resin; and pitch is sometimes employed. Tin foil, applied between the joints of fine brass work, first moistened with a strong solution of sal-ammoniac, makes an excellent juncture, care being taken to avoid too much heat.

SOLDIER;* originally a warrior who serves for pay, from which circumstance, as is shown in the note, the word is derived. In other languages, having corresponding words derived from the same root—for instance, in German—*soldier* is frequently used to denote more especially the modern warrior, contradistinguished to the ancient, as well as to the feudal militia, and to the mercenaries of the middle ages. The first example of mercenaries is found about 700 B. C., in Carthage, if we except the small companies of guards in the service of some kings and tyrants. Carthage, with a moderate population, and much commerce and industry, first kept an army of mercenaries on foot. Yet every citizen continued to be obliged to serve, in case of necessity. These mercenaries disturbed the peace of the city by their conspiracies, and, in most of the struggles for national independence, proved of little use. Carthage, therefore, though defended by numerous fleets and armies, was overthrown by a power of but moderate strength, but relying solely on the valour of its own citizens. The example of Carthage was followed by Syracuse and other governments of Sicily and Lower Italy, and with precisely the same result. In Egypt also, under Psammetichus and his successors, Greek mercenaries were employed (about 656 B. C., on which account the old caste of warriors emigrated to Æthiopia;) but a single battle with Cambyses sufficed to overturn the throne of the Pharaohs, already shaken by the warlike hordes of Nebuchadnezzar; and another example was presented of the insufficiency of mercenaries; yet the employment of them became more general. In Persia, military service was confined to the nobler tribes; only on some extraordinary occasions, as the attempt of Xerxes against Greece, the whole nation was called to arms. With the increase of luxury among the ruling tribes, the standing armies of Persia came to be formed chiefly of Barbarian and Greek mercenaries; and the consequence was that this vast empire fell to pieces when boldly attacked by the Macedonians. The flower of the army of Alexander also consisted of standing troops; but they were native Macedonians, who, elevated by the genius of their commander, fought for their national honour. In the best times of Greece, her only wars had been of a national character. The battle of Marathon, the noblest conflict recorded in Greek history, was gained by 10,000 Athenian and Platæan citizens. But when Athens and Sparta began to contend for the supremacy of Greece; when internal wars became frequent, and degeneracy increased,—then mercenaries were employed. The number of citizen-soldiers diminished, and Greece lost her liberty in the battle of Chæronea. From the time when standing armies came extensively into use, a melancholy spectacle is presented. Nations appear to await their fate passively. In all directions countries are overrun with troops, and violence prevails. Every successful army establishes an empire; every general becomes a monarch. Thus arose the thrones of the New Macedonian, the Selucidian, Ptolemæan, and other dynasties. Even in Greece, tyrants (i. e. leaders of bands of warriors) were seen in every city, oppressing the defenceless or peaceable citizens, until, at a later period, republics again rose in Ætolia and Achaia. But the military empires which grew out of the Macedonian conquests, had no firm foundation. They fell in quick succession, when assailed by the national armies of Rome. On the other hand, the small Ætolian and Achæan leagues were conquered with greater difficulty than the wide-spreading empire of Antiochus, and their national warriors were overcome rather by cunning and treachery than by force. In Rome, until the latest times of the republic, the part of the people capable of bearing arms were bound by law to serve, when called upon by the magistrate. No pay was received until a late period; and, when it was at length introduced, on account of the protracted wars, none served for the sake of it, but merely received it as a means of support during service. Down to the times of Marius and Sylla, there were no mercenaries in the Roman armies, and the period previous to their introduction embraces the greatest triumphs of the Roman arms—the conquest of Italy, with all its difficulties and dangers, the gigantic struggle with Carthage, and the humiliation of the empires which had grown out of the conquests of Alexander. But as the avidity for conquest and plunder increased, and the people and the government became more and more corrupt, standing armies gradually came into use, and soldiers, though enlisted from the citizens, had no longer the character of citizens. Marius, contrary to the ancient laws, introduced the lowest rabble, which had been till then entirely exempt from service, into the legions, and thus changed essentially the spirit of the Roman soldiery. For now the military service became a profession, to which persons flocked, who were destitute of public spirit and true patriotism, and who became rather the soldiers of the general than of the country. Yet important victories were still gained (as those of Marius over the Cimbri and Teutones, and those of Sylla over Mithridates), and the armies retained, partially at least, a national character. It was not till the total destruction of liberty that an entire change took place in the military system. Before that time, standing troops had been kept for the defence of the frontiers, and the preservation of tranquillity in the oppressed provinces; but in Rome and Italy the army was obliged to respect the majesty of the people and the authority of the magistrate. Even the struggles, often attended with bloodshed, which took place in the *comitia*, and on other occasions, had been chiefly confined to citizens. The soldiers of Sylla were the first who shed the blood of Roman citizens without shame and without punishment. These outrages now became common, and the people were obliged to submit to the arrogance of the generals and the legions, and sometimes to the insolence of an armed rabble, until at length, after a long warfare of factions, the most successful and most artful general concentrated in himself the whole military power, and became unlimited ruler of the people and the army. From this time, there were no longer, either in Rome or the provinces, soldiers of a national character, but only tools of the monarch. The more despotic the government became, and the more the empire was assailed by barbarians, the more numerous and permanent became the standing forces. The ancient laws, obliging all citizens to serve, were forgotten, and the characters of citizen and soldier became more and more distinct. Mercenaries were now in request, who were willing to keep the citizens in subjection, for high pay and privileges of various kinds. At a still later period, when the degeneracy of the people was frightfully increased, barbarians were taken into pay, whose interest was still more opposed to that of the Roman citizens. Only in great emergencies, forced levies of the people of the country were resorted to. The emperors granted privilege after privilege, and favour after favour, to these pillars of their tyranny; and the nation was divided into two hostile classes, differing in interests, relations and rights, one of which was degraded by law, and compelled to suffer every outrage which insolence and cruelty could inflict; the other was above the law, and perpetrated with impunity every crime. But even as the people trembled before the tyrants, the tyrants themselves trembled before the pretorian guards, whom they were obliged to caress in all possible ways, and from whom they suffered many insults. The just emperors, friends to the citizens, as Pertinax, Alexander Severus, Balbinus, Probus, Gratian, &c., were killed by the soldiery, who lamented the death of monsters like Caligula and Commodus. At length, the divisions of these very soldiers, who proclaimed emperors at pleasure, shook the empire to its foundation, and the German and Scythian tribes found it easy to conquer Rome, the mistress of the world, whose sway extended over a hundred nations, and who had at her command the resources of the richest countries, and of the most experienced tactics, and whose standing army was three times as numerous as the forces with which, in former times, she had conquered the world. After the fall of Rome, the warlike spirit of the Germans spread over all Western Europe, and as far as Northern Africa. The Germans (*Germannen*, *Wehrmänner*, armed men, or men at arms), were a tribe of warriors; and war with them was generally a national affair, not the exclusive concern of one class. Hence, when the people had concluded on war, every man capable of bearing arms was obliged to march into the field. When the Germans had conquered the Roman provinces, their military constitution remained the same, though, at a later period, the obligation to perform military service was attached to a certain property. Those who possessed less than the required amount combined in greater or less numbers, to send one man into the field: thus the richer part of the nation formed the army. But political changes produced changes in the relations of the soldiers. The conquering tribe often remained in a conquered province, like an army encamped in an enemy's country, separated, as it were, from the natives, who were excluded, partially or entirely, from political rights. A few unfortunate battles were always sufficient to overturn such empires as those of the Vandals, the Ostrogoths, &c.* Only when the conquered and the conquerors became mixed, or the latter were the most numerous, could permanent empires be formed, such as that of the Franks. But, by degrees, the feudal system extinguished allodial independence in the Frankish and other empires. The ancient custom of the Germans to fight not only in the wars of the whole nation, but also in the quarrels of particular leaders, gave rise to this monstrous system, which has kept Europe so long enchained, and has occasioned such an enormous expenditure of blood. These leaders whose numerous followers had enabled them to render particular services, and those nobles who had distinguished themselves by military talent or valour, and, above all, the king, or chief leader, received large portions of the conquered country, which they again assigned to their followers as fiefs. The latter bound themselves, in return, to continual fidelity, and the performance of military service. The increasing lawlessness of those times obliged the possessors of small allodial estates to surrender them to the more powerful lords, and receive them back as fiefs. (See *Feudal System.*) Every landed estate became a fief; and this had a powerful effect on the military system. Wars were now carried on solely or chiefly for the advantage of the prince, but not for the common benefit. The old national militia gradually fell into disuse, nay, was almost forgotten. The kings and princes preferred the service of their vassals, as no resolve of the nation was necessary to call them to arms. The vassals, in their different degrees, formed a sort of standing army, ready to obey every call of the superior lord; and thus all remains of popular liberty were extinguished, and a feudal nobility, that is, nobility of a military character, dependent on the monarch, sprang up. He who was not a vassal of the crown, or of a powerful lord, became lost in the mass of the people, who were sunk in bondage. At a later period, the spirit of feudalism changed, and so did the military service connected with it; but the oppression of the people, that is, of the mass of the people, continued, nay, became still severer. Vassals became more and more powerful; fiefs became hereditary, and the richer vassals almost independent of their feudal lord. They obeyed when it was for their interest, or when they were compelled. The only security for the existence of the governments, whose defence consisted in the feudal militia, was the state of weakness common to them all. Lawlessness and brutal tyranny now raged in each state for several centuries, until the power of the feudal aristocracy was broken by a union of the monarchs desirous of extending their authority with the third estate (deriving its origin from the growth of cities (q. v.), the great source of modern civilization), which was desirous to protect itself against the insupportable arrogance of the nobility. Then a militia, consisting of citizens, was formed in the cities—warriors who fought for their hearths and their commonwealth; and the kings (Philip Augustus of France, from 1180 to 1223, was the first) established armies of mercenaries, to protect their thrones against their vassals. The people, groaning under the oppression of the nobles and the priests, considered all the power that the throne gained as an advantage to themselves, without suspecting the pernicious consequences which were to result from the establishment of armies composed of mercenaries. Though feudal service continued, the standing troops came more and more into use; and even cities, republics and confederacies (as the Hansa, q. v.), kept armies on foot according to their means. An increase of these forces seemed necessary, on account of the increasing power of the Turks. Amurath I. (from 1360 to 1389) founded the standing army of janizaries (q. v.), so peculiar in their organization, and through them obtained great advantages over the neighbouring states, which were unable to oppose to him an equally strong and well-organized force. But the formation of standing armies was difficult. If they were to continue without limitation of the term of service, they must be composed of volunteers. To induce these to enlist, pay was necessary, and the troops seemed to be rather in the service of the monarch than in that of the nation, while the revenues of the former did not allow them to keep large armies on foot. In peace, therefore, only a small number of soldiers was maintained for the preservation of internal tranquillity; and, in time of war, large bodies of troops, under commanders called *condottieri* in Italy, were taken into pay. On the close of the war, they were dismissed, and offered their services in other quarters. This system led to great abuses. The *condottieri*, when they met, frequently spared each other, having no mutual enmity, and committed the greatest outrages against the subjects of the prince for whom they nominally fought. Their bands were schools of licentiousness and cruelty. During the same period, the princes found out a popular mode of raising taxes. The deputies of the people were assembled, and, by all kinds of influence, bribery, grants of titles, &c., were induced to assent to the taxes proposed by the princes. The nations now thought they had gained much in the important right of self-taxation. Supplies for increasing the number of troops were willingly granted, to obtain long-desired privileges; but, while the people suffered themselves to be disarmed, and furnished the means of supporting standing armies, all the barriers were overthrown which had limited the arrogance of princes, their thirst for conquest, and the oppression of the people. In proportion as the power of the monarchs was augmented by the increase of their armies, they became able to add continually to the weight of the taxes. The kings of France, who had been the first to establish a standing army, also preceded the other princes in increasing the same, and in restricting the power of the great vassals, in the grant of considerable privileges to the communities, and the subsequent oppression of them, in the increase of taxes, and in all the measures of domestic despotism and foreign ambition. About 100 years after Philip Augustus, who had surrounded his throne with mercenaries, Philip IV., or the Fair (from 1285 to 1314), followed closely in his steps, so that the French throne became more powerful than any other. (See *Army, Standing.*) At last, the unscrupulous policy of Richelieu completed the French system of foreign aggrandizement; and all restraints on the increase of the standing army were removed, as Europe learned in the pernicious wars of Louis XIV. As soon as France had completely established a military power independent of the citizens, other states did the same, some from necessity, some dazzled by her example, some merely for the gratification of the monarch. At the same time, in all countries, even in the smallest, the army became the receptacle of the idle and arrogant nobility, who, since the expiration of the feudal times, had lost their original occupation, and yet were, for the most part, too indolent and proud to follow occupations honourable to a citizen. Through a variety of misconceptions, the governments, particularly after the time of Frederic the Great, came to the monstrous conclusion that a great military state was the perfection of political society. The benefits which Europe has so long derived from the political example of Great Britain, have been peculiarly great since that period; for, notwithstanding the abuses in our famed administration, the chief objects of its government have always been of a civil character, while on the continent of Europe, a military spirit came to pervade the whole system. The greater states considered their armies as the main pillar of their strength; the small ones imitated them, if from no other motive, from that of show and splendour. The sufferings arising from this state of things are much too numerous to be mentioned here: it affected society in all its ramifications: war increased, because the instruments for war had increased; neither in the times of the allodial nor of the feudal system did such general and protracted conflicts desolate Europe as during this last period: taxes and all kinds of political burdens were fearfully augmented: the magnitude of armies and the system of military subordination had a decidedly bad effect on the citizens at large, corrupting their morals, and blunting their sensibility for justice and right: the frauds and violence employed to recruit the armies can be compared only to those employed in carrying on the negro slave-trade. If to these we add the violation of all constitutional and legal barriers, in the conduct of the governments towards the people, we shall have enumerated but a part of the evil consequences of these machines of tyranny. The invention of gunpowder, in the fourteenth century, producing a total change in the military art, had accelerated the arrival of this state of things. The long practice required to attain skill in the service of artillery, and the complicated system of tactics which had come into use since the introduction of fire-arms, seemed to make standing armies indispensable. The expensive equipment of armies demanded high taxes, and the armies compelled the nations to bow to the yoke of the Philips and Louises, to a Louvois, and even to a Pompadour. The monarch disposed of the property, and even of the children, of his subjects. Heavily did this burden press upon the continent of Europe when the French revolution began. In the wars which ensued, we all know what the national armies of France achieved against the numberless mercenaries of the other powers. The conscription being introduced, made every citizen liable to be drawn as a soldier. The establishment of the modern militia (of which we have spoken under the article *Militia)* is one of the most important changes in the history of national liberty, as no means so effectually oblige a monarchical government to yield to public opinion as an army of citizens. A brilliant illustration of this truth has been afforded, of late years, when some of the most powerful governments of Europe, evidently eager to make war against liberal principles, have been, hitherto at least, prevented by the well-known disinclination of their subjects. The idea of maintaining a balance of power, which has cost Europe rivers of blood, and has been made the pretext for every disturbance of peace and of the political balance, must be considered as mainly a consequence of the numerous standing armies; and if there existed no armies except those of a truly national character, men would think as little of making war upon another state to diminish its disproportioned power, as of compelling an equal division of property among individuals. It had been the policy of governments to render armies mere machines; but they found, in the wars growing out of the French revolution, that discipline and tactics are by no means the only things which ensure victory. The *morale*, that is, spirit, moral feeling, enthusiasm, fanaticism, are even more important than the physical power of an army and military skill in those who conduct it. History affords numerous instances of victories, won by troops animated by patriotism or religion, over much better organized and better commanded armies composed of mercenaries.

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* One of the many words met with in all the languages of Western Europe, and though originally of Teutonic origin, yet, in its present form, borrowed from the languages of the Latin stock. *Soldier* (in German, Swedish and French, *soldat;* in Italian *soldato*, &c.) comes from the middle Latin term *solidarius*, one who receives *sold* (German for military pay, in which sense it is also used in old English writers). This receiving pay distinguished the soldiers from the former feudal militia; and the German word *sold* came into use because the Swiss were the first hired foot-soldiers; but the term for *warrior*, derived from it, first received an Italian form, because the Italians first employed hired warriors. From them it spread to the other nations of Europe. The German word *sold* (Italian *soldo*, French *solde*, Spanish *sueldo*, always signifying the pay of troops) has been derived by some from *salt*, because salt was given to soldiers as part of their pay; but it ought rather to be derived, with *salarium*, *solvere*, and the German *zahlen*, from the ancient German word *sellen* (from which the English to *sell*), which is frequently met with in the authors of Upper Germany, and corresponds to the Swedish *sälja*. It means to *give*, to *transfer*. From this verb comes the ancient Swedish *sal*, signifying the fine paid for murder. *Söl*, in Icelandic, to this day, denotes a *present*, *gift*, *reward*—a meaning which *sold*, the pay of soldiers, probably had originally.

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* The Turks in Algiers have, till lately, presented an instance of a similar government.

The class of soldiers is interesting, not only in a historical and political, but also in a legal view. Soldiers enjoy certain privileges in regard to the making of wills (see *Will*), and the acquisition of property during war (*peculium castrense)*; for though the soldier may be yet under paternal power, he has the right of a *pater familias ;* i. e. he may dispose of his property in any way which he may choose. In some countries, he is not allowed to be prejudiced by ignorance of law. In many countries, he is entitled to a trial on criminal charges before a particular court; in England and United States, however, only for military offences. What soldiers obtain by conquest is not theirs, but belongs to their government, excepting a part of the movable property, which is left to them. Public money or military stores which are taken must be given up to the public authorities. The laws of the different armies, as to military offences, are too various to be stated here, particularly as they vary much with the degree of civilization, and the character of the troops.

We shall now speak of the history of tactics. Whether an army is actuated by an enthusiastic patriotism, or any other noble feeling, or by a mere thirst for booty, it remains, to a certain degree, a machine, of which the parts must move in obedience to a directing intelligence; and in proportion as this understanding exerts a more complete sway over the great machine, composed of so many individuals, all differing morally and physically, the organization of the army approaches perfection. What we have said of the great importance of the moral character of an army, will show that we do not consider modern wars as merely the operation of two machines set against each other, and as decided simply by the skill of the commanders—a common mistake among persons ignorant of the nature of warfare. In the history of European armies and tactics we may distinguish five periods: viz. of the Roman legions, of the Teutonic feudal armies, of the invention of gunpowder, of the school of generals in the time of Louis XIV., and of the school of the French revolution.

I. The Romans were but very imperfectly acquainted with the modern system of deciding the fate of battles by preparatory movements, in which the hostile forces are sometimes occupied for months before meeting. They used neither magazines nor arsenals, nor artfully concealed their plans of operation. Cæsar, while in Gaul, made marches of thirty-seven miles in twenty-four hours. In the battles, the struggle of the line decided the victory. Till the time of Scipio Africanus, who first used foreign mercenaries as auxiliary cavalry (Numidians, Spaniards, &c.), the Roman armies consisted of Roman citizens or allies. On the *Campus Martius* the legions were formed of men both married and unmarried, from seventeen to forty-six and fifty years of age: no one was exempted except those who had made twenty campaigns. Before every war, as no standing army existed, the new legions were arranged according to their physical and moral qualities by the military tribunes. The younger and poorer were taken for *velites*, a kind of light troops (the archers and slingers were foreigners). Then the *hastati* were selected: these corresponded to the companies in the centre of our regiments of the line. Then followed the *principes;* then the *triarii*; and last the *equites*. The strength and composition of the various species of troops in the legions varied. Each legion constituted a small army of from 4000 to 6000 men, including all kinds of troops, workmen, utensils and ammunition. The cavalry constituted but the twentieth part of the legion, comprising only two or three hundred horsemen, who also fought on foot. The strength of armies consisted of infantry. A consular army never included more than 18,600 men, of which number 1800 were cavalry. In times of danger, several armies were united. The Roman forces at Cannæ included four such bodies as above described, since it amounted to about 80,000 men. A cohort was a company of from 400 to 600 men. The arms, defensive and offensive, differed according to the kinds of the soldiers. A Roman warrior on th

march carried in arms, camp utensils, palisades, provisions for nineteen to twenty days, &c., a burthen of at least ninety pounds; hence double what the soldier now carries. Vegetius compares an army carrying 1000 palisades to a moving fortress. The physical strength of the soldier was exercised incessantly. The recruits were trained in Rome by carrying and marching in the burning sun. In the camp the soldiers worked on roads and bridges, aqueducts, &c., whereby the legions were made to diffuse Roman civilization. The Roman soldier was the best builder of walls ever known. The battle was begun by the *velites*. When they had retreated to the wings of each legion, or into the intervals, the *hastati* threw their spears when about twelve or fifteen feet distant from the enemy, and then rushed on, sword in hand. If they were repulsed, the *principes* advanced, and the former again arranged themselves in order. If the *principes* wavered, then the compact mass of *triarii* pressed forward—having till then rested on one knee, protected by their shields. If the enemy now gave way, the *velites* and cavalry assailed him, and made the rout complete. This threefold line of battle and threefold conflict gave the Roman legions an advantage over the Macedonian phalanx. (q. v.) The Roman soldier always remained in the camp, even in peace *(castra stativa)*; he was always occupied, and subject to very strict discipline. This kept him strong; and there were fewer sick men to encumber the march than at present. Towards the end of the republic, the armies were much increased in number by foreigners and slaves; but their moral power decreased. Augustus was at the head of forty-nine legions and 19,000 horse; to which must be added 10,000 pretorians and the provincial troops. With the discipline, the art of war declined.

II. In the time of Honorius and Valentinian, the legions could no longer resist the irregular attacks of the Huns, Goths, Vandals, Burgundians and Franks, whose power consisted wholly in their numbers, physical strength and impetuous courage. Charlemagne gave to his armies an organization which made them superior to their brave but undisciplined enemies; but the chronicles do not afford us any particulars on this point. In the eleventh and twelfth centuries, the armies consisted of feudal militia, viz. vassals, who served under the banner of their feudal lords for three months or ninety days. For this period, every one provided himself with necessaries, and, on its expiration, went home, whether the war was at an end or not. The men at arms (horsemen in armour) were the strength of the French army; the rest consisted of infantry, badly armed and exercised, mostly bondsmen. When the arts revived in Italy, the art of war also attracted its share of attention, and was improved; but the wars were carried on by mercenaries, commanded by the *condottieri*, already mentioned. These troops, eager only for pay and booty, had no desire for each other's destruction; and this circumstance gave rise to stratagems and artificial movements, and thus, singularly enough, led to the invention of modern tactics. Choice of positions, marches, and counter-marches, artificial attacks of fortresses, surprises, and avoidance of disadvantageous engagements, distinguish the wars of the famous du Guesclin, under Charles V., king of France (1364—80). The bands of mercenaries whom he commanded, amounting to 30,000 men, were real scourges of the country when not occupied in war. After this came the struggles of the Swiss for their liberty. Their strength was in infantry. In order to withstand the men at arms, they gave to their infantry the helmet and cuirass, halberd and sword. The victories of these pike-men attracted the attention of all military nations. Louis XI. of France took 6000 of them into his service; and in the Italian wars of Charles VIII., the Swiss infantry, 20,000 men strong, were the terror of the enemy, but were ready to desert the standard of their employer whenever their pay was delayed. At an earlier period, similar troops of pike-men had been in use in Germany, Spain, and France. Charles VII. of France, in particular, had instituted fifteen "*compagnies d'ordonnance*" (in 1444), the first standing army, and "*francs archers*" (in 1449), 16,000 infantry, and 9000 horse. Louis XI. increased the army to 29,000 infantry and 19,000 cavalry. This subsequently rendered a new arrangement necessary. Francis I. divided the infantry into seven legions, each of 6000 men; but regiments of from 2000 to 3000 men soon took their place. These, at a later period, were again divided into battalions of from 600 to 700 men, for the sake of manœuvring with greater ease. The sharp-shooters were light troops, and fought like the *velites* of the Romans; behind them the close lines of pike-men advanced to battle.

III. Since the sixteenth century, the use of fire-arms (rifles, muskets, and cannons) has made a new epoch in tactics. The famous Spanish general Pescara was victorious at Pavia, in 1525, over the French cavalry by means of fire-arms. But it was long before the use of the heavy ordinance was skilfully combined with that of the lance. This was first attempted by Puysegur, in the beginning of the reign of Louis XIV. The superiority of artillery over every other species of arms was now decided; yet the use of lances and pikes continued to the end of the seventeenth century. At this time, light cavalry substituted the carbine for the lance; but the defensive arms—helmet, cuirass, &c.—were laid aside too soon. After the match-locks were changed for flint-locks, the musketry was placed in the first line, and the depth of the order of battle gradually diminished. Armies had, till then, been drawn up in lines six or eight men deep.

IV. This diminution took place chiefly after the introduction of the bayonet, invented, in 1670, at Bayonne. Moreover, the difference between heavy and light infantry now ceased entirely, as all were armed in the same way, much to the detriment of the means of attack. The armies were burdened with a heavy park of artillery and much baggage, which greatly impeded their movements, and the disadvantage of the deep order of battle was not yet fully appreciated. But, even at this period, the infantry were placed in the centre, and the cavalry on the wings and in the reserve. (Marsin and Tallard, who were beaten at Blenheim (q. v.) had placed the cavalry in the centre.) In the time of Louis XIV. all the species of fire-arms were improved; tactics made great progress, and the art of fortification and besieging was carried to great perfection by Vauban. Frederic II. of Prussia introduced greater simplicity, order, and ease into the manœuvres of the infantry. The firing was performed more quickly, and on the field of battle every evolution was executed with greater precision. Among the greatest generals of that period was marshal Saxe, who knew better than any commander of his time how to adapt the art of war to the spirit of the French soldier. After the seven years' war, the Prussian army was considered the best in Europe. Soldiers of all countries flocked to the reviews of Frederic, at Potsdam, to study in his school. But, skilful only in theory, and poor in experience, they did not perceive that the national character of the soldier properly belongs to the province of military calculation. The soldier was treated as a mere machine, and the perfection of tactics was supposed to consist in making him one, as nearly as possible, and the military service became loaded with trifling details. The French soldier, less fitted for such discipline than the native of any other country, became disgusted, and negligent of essential points of military duty. Only the French artillery retained its old reputation, because, instead of imitating, it was, itself, a model. The manufacture of arms reached the highest perfection under Louis XIV. But French discipline, whose basis is honour, received the severest shock from the minister of war, count St Germain, when he attempted to introduce the German mode of punishment, with the cane and the flat of the sword. Many unnecessary details were introduced into tactics. The mode of enlistment, too, was highly prejudicial. Vagabonds, criminals who wished to escape the laws, entered the service; and, on the other hand, the recruiting officers practised the basest frauds and violence to raise men.

V. An entire change was introduced by the French revolution; first in France. Love of country, liberty, glory, national hatred, and the hope of plunder, every thing conspired to fill the French soldier with the highest enthusiasm.* In the commencement of the wars of the French revolution, the forces of France were unsuccessful. The officers, who were all nobles, had emigrated in large numbers. Their place was supplied, in part, by inexperienced men; the old troops of the line had lost their discipline; all subordination was dissolved; France was without defenders. The people then felt the necessity of taking their own defence into their own hands; and, on the first requisition, of the unmarried men from eighteen to twenty-five, a million men entered the lines. Their school was the field of battle; their discipline enthusiasm; their tactics impetuosity. With fixed bayonets, singing sons of victory, they assaulted the batteries of the enemy. Against such courage the fire of cannon was of little avail. When the first enthusiasm had in some measure subsided, the aid of the guillotine† was resorted to; but the national pride and enthusiasm for liberty still remained the great moving power. The French generals again employed artillery; and it often decided the victory. In the time of Louis XIV., an army of 90,000 men had but forty cannons; in the seven years' war, an army equally large had 190—200; at the battles of Austerlitz, Jena, Friedland, Wagram, Dresden, Leipsic, about 1200 cannons were brought into action. The mixture of the old troops of the line with the citizen-soldiers required the new distribution of troops into divisions, brigades, half-brigades (2400 men, or three battalions). But the new system of managing and supporting the troops caused too much writing. In the train of the army was found a multitude of commissioners and agents, often detrimental both to the conquered country and the army. Great advantage was derived from the *tirailleur* system (see *Tirailleurs*), which originated in North America during the war of the American revolution, and was perfected by the French. The light troops were increased and organized anew, and the infantry of the line were taught to perform the service of the light infantry, so that the French *tirailleurs* soon became much dreaded. In order to march quickly, and to execute movements with large masses easily, the use of baggage-waggons was abolished, and pack-horses substituted. Light artillery, which had been introduced by Frederic II., was carried to great perfection by the French. In the battle of Dresden (August 26 and 27, 1813), sixty batteries of mounted artillery, comprising, perhaps, 240 pieces, in the course of three hours, silenced the cannon of the enemy. A fault was committed in arranging together in regiments this species of force, which is intended to act sometimes in small divisions, sometimes in large masses. Napoleon at length assigned a regiment of artillery to each corps of troops of the line. It is singular that a truly military character was not given to the camp equipage till 1793. This important improvement was soon generally imitated, most perfectly in Russia. On account of the size of the armies, it was necessary to dispense with tents and barracks; and the system of bivouacking was introduced, which, at first, gave the French great advantages, but soon weakened their troops greatly, by the diseases which it occasioned.

SOLE (*solea*). The soles are distinguished from the flounders by having the mouth turned in an opposite direction with respect to the eyes, seemingly deformed, with teeth only on one side, and the front of the head almost always projecting. The common sole of Europe usually weighs about four pounds, but occasionally six or eight. The flesh is tender and delicious. Several other species are found in the European and Mediterranean seas.

The fishes of the *pleuronectes* family are remarkable, among vertebral animals, for the want of symmetry between the two sides of the body—a character entirely unique, and which destroys many a beautiful theory conjured up by the ingenuity of physiologists. The head is remarkably distorted, both the eyes being placed on the side which is turned upwards when the animal is in the water. The other, or blind side, is always flat and whitish. Sometimes individuals are found with the eyes placed in a reversed position from the rest of the species; others have both sides coloured alike, and are called *double*. This happens most commonly to the brown side, but sometimes to the white also. They are all destitute of a swimming bladder, and rarely leave the bottom. A singular method of taking flounders from the shore is practised at Boston, in the United States, with great success. Two rods are selected; a hook is attached to the extremity of one, and the sole of a shoe at right angles to that of the other; the latter is vibrated in the water, and attracts the attention of the fish, which, as they rise to visit it, are caught by a sudden jerk of the hook held in the other hand. The season when this mode is practised is when the ice is partially melted.

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* During the siege of Mahon, wine was cheap; the French soldiers intoxicated themselves; the service suffered, and severe punishments were of little avail. At last the duke of Richelieu gave orders, that whoever should be found intoxicated, should never have the honour of sharing in the assault. No soldier was seen intoxicated again in the camp. A regiment of dragoons had suffered very severely in the battle of Marengo, and Bonaparte, at the review after the battle, promised them good quarters. "No," cried the brave dragoons, "let us have the honour of the first attack to-morrow." With such soldiers good generals could do wonders.

† When, after the loss of the lines of Weissenburg (October 13, 1793), a want of generals existed, St Just and Lebas, the commissioners of the convention, called upon every soldier who felt the talent for command, to put himself at the head of the army, but threatened him with the indignation of the people, if he should allow himself to be deceived by his vanity. Only eleven officers accepted this offer, with the obligation to conquer or die: among them were Kleber, Pichegru, Desaix, Hoche.

SOLEBAY, OR SOUTHWOLD BAY; a bay of the German ocean, on the coast of Suffolk, noted as the scene of a sanguinary naval engagement, in 1672, between the combined fleets of England and France, consisting of 101 sail, and that of the Dutch of ninety-one sail. In 1666, a famous sea fight also took place here between the English and Dutch, in which the latter lost seventy vessels.

SOLECISM (from the Latin *solœcismus;* Greek *σολοικισμος*); the violation of the rules of a language in speaking or writing, so called from the town of Soli, in the eastern part of Cilicia, in Asia Minor, the inhabitants of which spoke the Greek language very badly. The Romans included even awkward gestures on the stage under this name. The ancients distinguished *solecism* from *barbarism*, and designated by the latter the faulty use of single words; by the former, every violation of syntax. (*Quinctilian*, lib. i. ch. 5.) Modern grammarians have retained the words, yet not with precisely the same distinction; nor do they all agree in the distinction which they make.

SOLEURE (in German, *Solothurn*); a canton of Switzerland, bounded north by France and the canton of Basle, east by Basle and Zurich, south and west by Berne; square miles, 275; population, 54,330 of German origin, 4310 Calvinists, the remainder Catholics. The Jura mountains occupy a part of the canton; the rest of it is level and fertile. The ground is partly arable, and partly adapted to pasture; and the cattle of this canton are considered the best in Switzerland. Soleure was received into the confederacy in 1481. The capital, of the same name (4471 inhabitants), stands at the foot of mount Jura, is divided by the Aar into two parts, fortified with walls and bastions, and, though irregular and built in a bad taste, has several good edifices. It contains three churches, five convents, an hospital, a lyceum with five professors, and a town library of 8000 volumes. The environs are pleasant and picturesque. The town is very ancient, and several Roman antiquities are found here. See *Switzerland*.

SOLFAING signifies, originally, to exercise the voice upon the syllables ut, re, mi, fa, sol, la (solmization), adopted by Guido of Arezzo to designate the notes. To these, at a later period, the French added the syllable *si*, in order to complete the octave. It is applied also to the singing and reading of notes without text, in which the tones only are named. Pieces without text, intended for this sort of exercise, are called *solfeggi*. Sometimes this word is applied also to instrumental music (e. g. on the piano) and then those pieces are meant, which are merely intended to exercise the learner in reading notes and hitting intervals. Solfaing, according to the above-named syllables, had reference to the system of twenty-two diatonic tones (from g to $\overline{\overline{\overline{c}}}$), divided into seven hexachords, established by Guido of Arezzo. If the music went beyond the sixth, the syllables were changed, in order to bring the *mi, fa*, which designated the transition from the third to the fourth degree of the hexachord, to its proper place again, for which certain rules were given. With the extension of the system of tones by the enharmonic and chromatic genera, the difficulty of singing after these syllables increased, on which account the Germans and Dutch gave up this way of designating them. See *Ut, Re, Mi*.

SOLFATARA; a height near Naples (see *Naples*); also a lake near Rome. See *Campagna di Roma*.

SOLFEGGI. See *Solfaing*.

SOLICITOR, SOLICITOR GENERAL. See the articles *Advocates*, and *Advocate of the Crown*.

SOLID, in philosophy; a body whose parts are so connected together as not to give way or slip from each other upon the smallest impression; in which sense *solid* stands opposed to *fluid*. Geometricians define a solid to be the third species of magnitude, or that which has three dimensions, viz. length, breadth, and thickness or depth. A solid may be conceived to be formed by the revolution, or direct motion, of a superficies of any figure whatever, and is always terminated or contained under one or more planes or surfaces, as a surface is under one or more lines.

SOLID ANGLE is that formed by three or more plane angles meeting in a point; like an angle of a die, or the point of a diamond well cut. Or, more generally, it may be defined the inclination of several plane surfaces, or one or more curved surfaces.

SOLIDS. See *Animal Matter*.

SOLILOQUY, OR MONOLOGUE, in the drama, or a work of dramatic character; the expression of the thoughts or feelings, in language not addressed to a second person; it is therefore opposed to the *dialogue*. Dramatic writers have recourse to soliloquy for the purpose of exhibiting more distinctly the real character of the persons of the action, their secret motives, and the manner in which they were affected by important events, and thus show the hidden springs of the action. It has been objected that soliloquy is unnatural, and that, in real life, persons alone never express their feelings aloud, except under a strong excitement and in a few words. Even if this criticism is just, the monologue cannot be dispensed with in the drama; but good taste requires that it should be used sparingly, and only when the same object cannot be effected by means of the dialogue.

SOLIMAN II. See *Solyman II*.

SOLINGEN; a town in the Prussian province of Juliers-Cleves-Berg, noted for its manufactures of iron and steel ware, and silk stuffs. The population of the town and parish exceeds 9000; twenty miles north-east of Cologne.

SOLIS, ANTONIO DE; a Spanish poet and historian, born at Placenza, in Old Castile, in 1610. His inclination for dramatic poetry procured him the acquaintance of Calderon, for some of whose pieces he wrote the preludes (*loas*). He is principally known at present as a historical writer. Having been appointed historiographer of the Indies, he drew up a work entitled *Historia de la Conquista de Mejico*, which passed through many editions, and of which an English translation was published in 1724 (folio). He took orders in the church in the latter part of his life, and died at an advanced age, in 1686. An edition of the History of the Conquest of Mexico, in the original Spanish, was printed in London in 1809 (3 vols. 8vo.)

SOLITAIRE (French, *solitary*) is used also as a substantive. One of the meanings is a diamond set alone, without other stones round it.

SOLMIZATION. See *Solfaing.*

SOLMS; a German family of counts and princes, in Wetteravia, sprung from the stock of Conrad the Salian. Since 1432, it has consisted of two lines, Solms-Braunfels and Solms-Lich, the latter of which is divided into the branch of Lich and Hohensolms and that of Laubach. The line of Braunfels received the dignity of prince of the empire in 1742, and the branch of Lich and Hohensolms in 1792. In 1806, the possessions of the family were mediatised, and are now subject to Hesse-Darmstadt and Prussia.

SOLO is a piece of music, or a passage, in which a single voice or instrument performs quite alone (i. e. without accompaniment), or is distinguished above the other voices. Thus there are violin solos, solos for the pianoforte, &c., pieces for the violin or the piano only; but a solo for the violin also signifies a passage in which the violin part is the principal. A solo, also, in a piece of music for several instruments or voices, denotes a passage which is to be executed by one of the instruments separately. And *tutti* signifies that all the voices or instruments are to commence again after the solo has been played. *Soli*, in the plural, denotes that two or more voices or instruments are to execute a passage in the same manner, distinctly from the other instruments or voices. (See *Obligato.*) Peculiar freedom, ease, distinctness, and power of execution, is required to perform the solo with correctness, taste and feeling.

SOLOMON; son of David by Bathsheba, through whose influence he inherited the Jewish throne, in preference to his elder brothers. During a long and peaceful reign, from B. C. 1015 to 975, he enjoyed the fruits of his father's labours. A youth surrounded with royal splendours inspired him with a sense of dignity, and he carried with him to the throne, which he ascended, while young, with the cruelty of an Eastern monarch, the wisdom which he had derived from the lessons of his father and his father's counsellors. To confirm his power, he caused his brother Adonijah, and some discontented nobles, to be put to death, and formed alliances with foreign rulers. His remarkable judicial decisions, and his completion of the political institutions of David, showed a superiority of genius, which gained him the respect of the people. By the building of the temple, which, in magnitude, splendour and beauty, exceeded any former work of architecture, he gave to the Hebrew worship a magnificence which bound the people more closely to their national rites. The wealth of Solomon, accumulated by a prudent use of the treasures inherited from his father by successful commerce, through which he first made the Hebrews acquainted with navigation; by a careful administration of the royal revenues, which he caused to be collected by twelve governors, and by an increase of taxes,—enabled him to meet the expense of erecting the temple, building palaces, cities and fortifications, and of supporting the extravagance of a luxurious court. But while, on the one hand, the prosperity of the people was promoted, and the arts and civilization were improved, on the other, an example of pernicious luxury, and of a gradual relaxation of the severity of the Mosaic religion, was exhibited. Admiration of Solomon's wisdom and regal magnificence, which brought crowds of foreigners to his capital, and, among the rest, a queen of Sheba, easily drowned the few voices of discontent. His justice gained him the respect of his subjects; and an army stood at his command, consisting of 12,000 horsemen, armed in the Egyptian manner, and 1400 war-chariots, to overawe the Gentile tribes, which had been subjugated by David to the Jewish yoke, and were now forced to labour in the service of Solomon. Fortune long seemed to favour this great king; and Israel, in the fulness of its prosperity, scarcely perceived that he was continually becoming more despotic. Contrary to the laws of Moses, Solomon admitted foreign women into his numerous harem of 700 wives and 300 concubines; and, from love to these women, he was weak enough, in his old age, to permit them the free practice of their idolatrous worship, and even to take part in it himself. Still his adversaries, who, towards the close of his life, aimed at his throne, could effect nothing; but, after his death, the discontent of the people broke out into open rebellion, and his feeble son, Rehoboam, could not prevent the division of the kingdom. (See *Hebrews.*) The forty years' reign of Solomon, the last years of which were less glorious than the first, is still, however, celebrated among the Jews for its splendour and its happy tranquillity, as one of the brightest periods of their history. Throughout the East it is considered as a golden age. In fact, Solomon belonged more to the East, in general, than to his own nation. His mode of thinking was freer than be seemed a Hebrew. The writings contained under his name in the Bible, though they may have been collected and arranged at a later period, are substantially the work of Solomon. They breathe a philosophical spirit, elevated above the prejudices of his nation. His Proverbs are rich in ingenious and sagacious observations. His Ecclesiastes, or Preacher, savours of the philosophy which men of the world, sated with a long course of pleasure, form from the results of their own experience. It teaches that nothing is permanent, and therefore we should hasten to enjoy present good, and that God is the source of all wisdom. (For the Canticles, see *Solomon's Song.*) The book entitled the Wisdom of Solomon, though received into the canon by the Roman Catholic church, is rejected, as apocryphal, by Protestants. Solomon's wisdom and happiness have become proverbial; and the fables of the rabbins, and the heroic and erotic poems of the Persians and Arabians speak of him, as the romantic traditions of the Normans and Britons do of king Arthur, as a fabulous monarch, whose natural science (mentioned even in the Bible), whose wise sayings and dark riddles, whose power and magnificence, are attributed to magic. According to these fictions, Solomon's ring was the talisman of his wisdom and power, and, like the temple of Solomon, in the mysteries of the freemasons and rosicrucians, has a deep, symbolical meaning.

SOLOMON'S SEAL (*polygonatum*); a genus of plants, allied to the asparagus, which it resembles in the flowers and fruit, but the form of the leaves is very different. These last are entire, more or less oval or lanceolate. In most of the species, the leaves are alternate, and all directed upwards, while the flowers are pendulous, and, to the number of two or more, are disposed upon a common footstalk, which arises from the axil of each of the leaves. The calyx is wanting; the corolla monopetalous, cylindrical, divided at the summit into six obtuse lobes; the capsule is a rounded berry, containing three cells. We have two species or more in the United States. The name is said to be derived from the roots, which, in the common European species, are full of knots; and a transverse section of them shows characters which have been thought by the superstitious to represent the impress of the famous seal of Solomon.

SOLOMON'S SONG, OR THE CANTICLES, OR THE SONG OF SONGS; one of the books of the Old Testament, commonly attributed to Solomon. The manner, tone and colouring of this book bear marks of the voluptuousness, splendour and luxury of the age of Solomon; but on account of the traces of the Aramæan dialect, which it contains, it has been assigned by Eichhorn, Jahn, and others, to a later period. The scenes and incidents depicted in it form a connected whole, which has more of the idyllic or pastoral than of the dramatic character. Whether considered as the work of Solomon or of some later Hebrew poet, many view it as a love song, entirely destitute of religious allusions: its subject being the passion of the bridegroom and the bride. From the time of Origen to the seventeenth century, critics ascribed an allegorical religious meaning to this book; and, for above 1200 years, it was interpreted to describe the union of the faithful with God, Christ being signified under the emblem of the bridegroom, and his church under that of the bride. The older Jewish rabbis, however, permitted the reading of the song to no one under thirty years of age, and did not allow it to be read and explained publicly. Erasmus was the first theologian who endeavoured to prove that it was wrong to give an allegorical interpretation to this poem. Bossuet considered it Solomon's epithalamium. Lowth represents it as a sacred drama. Mr Good, who has given a metrical version of it in English, considers it a collection of Hebrew idyls; to which division of poetry Sir William Jones had previously referred it.

SOLON, one of the seven wise men of Greece, and the legislator of Athens, flourished about B. C. 600. He was descended from the ancient kings of Athens, and from Codrus, but was in such narrow circumstances as to be obliged to get his living by commerce. He possessed poetical talents, and had acquired extensive knowledge by his travels. His manners were affable and pleasing: he was a friend to reasonable enjoyment, not indifferent to riches, but free from avarice: universally esteemed by his fellow-citizens, he exercised an important influence in public affairs. It was by his means that the inhabitants of Cirrha were punished for a violation of the temple at Delphi; that those persons who had, contrary to their promise, murdered the adherents of Cyron (who attempted to make himself master of Athens) on sacred ground, were arraigned and condemned; and that Epimenides was sent for from Crete, to purify the city, and to soften the fierceness of the Athenians by religious influences. Plutarch says, that Solon made use of the services of Epimenides in the promulgation of his laws. As an instance of his patriotism, we may mention his venturing to propose the recovery of Salamis, at the hazard of his life. That island had been conquered by the Megarensians; and all the attempts of the Athenians to reduce it had been without success. It had therefore been forbidden, under pain of death, to propose the renewal of the attempt. Solon, discontented with this state of things, composed an elegy, reproaching the Athenians for their weakness, and, feigning himself mad, recited the poem with the greatest warmth before the people. The impression which he produced was heightened by the exhortations of Pisistratus, who mingled with the crowd: a new war was resolved upon, and the command of the expedition was given to Solon and Pisistratus. By the courage and prudence of the commanders, Salamis was recovered; and it would now have been easy for Solon to have made himself tyrant of Athens; but he rejected all proposals of that nature, convinced that the happiness of his fellow-citizens, and the introduction of a new and salutary form of government, would bring him a more permanent reputation. Draco's bloody laws had effected no reform in the internal condition of the state: Athens was divided into factions: the common people were entirely in the power of the rich and noble, and were cruelly oppressed by them. The rich compelled their poor debtors either to cultivate their grounds as serfs, or to sell their children, or to give themselves up as slaves; and many citizens, on this account, abandoned their country. The public treasury and the temples were likewise plundered. A new constitution was the general wish, and even many of the rich saw the necessity of it. In the third year of the forty-sixth Olympiad (B. C. 594), all parties united in choosing Solon archon, and in investing him with full powers as a lawgiver. He immediately abolished most of the cruel laws of Draco, raised the nominal value of money, entirely abrogated the debts, or reduced them so that they should not be burdensome to the debtors; and although, at first, neither party was satisfied with these measures, the poor being desirous of an equal division of the lands, yet they were afterwards convinced of their expediency and wisdom. At the same time, it was made a standing law, that no citizen should give up his own person or his children to his creditors, in satisfaction of his debts. The constitution of Solon was founded on the principle that the supreme power resided in the whole people, and that in the popular assemblies lay the prerogatives of declaring war and making peace, contracting and abrogating alliances, choosing and removing magistrates, repealing and passing laws. The judicial power was divided between the people and the judicial tribunals, already in existence. Public offences were tried before the Areopagus and the other courts; private suits were prosecuted before new tribunals, the members of which were chosen by lot from the whole people. The citizens were divided into four classes, three of which were determined by the amount of property, the fourth being composed of all those who had no property, this class was excluded from all public offices, but was admitted into the general assemblies of the people. This arrangement had the effect to encourage industry among the lowest class, by rendering it an object of ambition to them to raise themselves above the operation of the exclusion; and it was the policy of Solon to encourage arts and industry, upon which the prosperity of Athens depended. It also tended to place the most worthy and enlightened citizens in offices of trust. By making the choice of magistrates dependent not on lot, but on the votes of the citizens, a proper degree of influence was secured to the most respectable portion of the people. The only reward of public officers was the honour attached to their offices, no salary being connected with them. Still further to excite industry among the poor, the Areopagus was empowered to punish vagabonds; and the son was released from the obligation of supporting his parents, if they had taught him no trade. The great counterpoise to the power of the people consisted in the organization of the Areopagus and the institution of a council. The Areopagus not only judged in capital cases, but kept up a rigorous inspection into the morals and lives of the citizens, watched over the faithful observance of the laws, and possessed many of the privileges of archons. In cases of emergency, it seems to have exercised all powers, like the Roman dictators. The new senate of 400 (chosen from each *phyle*) had still more extensive powers, and was directed by an executive committee (*prytanis*), chosen from its own number. Solon attempted to give stability to his constitution, by a law, that no decree contrary to existing laws should be valid, and that whoever repealed an old law, should propose a new one in place of it; and to prevent the increase of a needy populace, he made it difficult for a foreigner to acquire the right of citizenship in Athens. Prodigal, extravagant, or otherwise immoral citizens were not permitted to speak in the popular assemblies, and were thereby excluded from all public offices. Bribery was punished by death, or a fine of ten times the amount of the bribe, or by infamy, both parties being treated as equally guilty. Adulterers, seducers of a free person, and procurers, were punished with death. A woman guilty of adultery was to be divorced, and could not appear at the public festivals. The hours for the public instruction of youth were fixed with the greatest exactness; and foreigners were forbidden all access to the gymnasia. The education of boys, youths, and men was regulated by particular laws; and public officers were appointed to superintend the conduct of masters and pupils. Whoever could not afford to send his children to a gymnasium, was required to have them taught agriculture or a trade. Solon left religion unchanged, but gave to the Areopagus the supreme direction of religious matters, and built several temples, among which was one to Venus Pandemos (the priestesses of which were public strumpets). When Solon had completed his laws (see *Petiti Leges Atticæ*, Paris, 1635), he caused them to be engraved on wooden cylinders, and bound the Athenians by an oath not to make any changes in his code for ten years. He himself left the country, to avoid being obliged to make any alterations in them, and visited Egypt, Crete, Cyprus, Lydia (see *Crœsus*), Miletus, where he met Thales, and several cities of Greece proper. Returning to Athens, after an absence of ten years, he found the state torn by the old party hate; but he was received with general esteem, and all parties submitted their demands to his decision. Among the leaders, at this time, was Pisistratus, who was at the head of the popular party. Although a friend and favourite of Solon, he found an opponent in him, when his purpose of obtaining the sovereignty became obvious. Solon left Athens for ever, and died soon after; but when and where his death took place is uncertain. He is generally represented to have died in his eightieth year, in the second year of the fifty-fifth Olympiad. Of his poems and other writings we have some fragments, which are contained in Glandorf's *Gnomicorum Poetarum Opera* (Leipsic, 1776, 2d vol.) The letters to Pisistratus, and to some of the seven wise men, attributed to him, are spurious.

SOLOTHURN. See *Soleure.*

SOLSTICE, in astronomy; that time when the sun is in one of the solstitial points; that is, when he is at his greatest distance from the equator, and is so called because he then appears to stand still, and not to change his distance from the equator for some time—an appearance owing to the obliquity of our sphere, and which those living under the equator are strangers to. The solstices are two in each year, the estival or summer solstice, and the hyemal or winter solstice. The summer solstice is when the sun seems to describe the tropic of Cancer, which is on June 22, when he makes the longest day; the winter solstice is when the sun enters the first degree, or seems to describe the tropic of Capricorn, which is on December 22, when he makes the shortest day. This is to be understood of our northern hemisphere; for, in the southern, the sun's entrance into Capricorn makes the summer solstice, and that into Cancer the winter solstice. The two points of the ecliptic, wherein the sun's greatest ascent above the equator, and his descent below it, are terminated, are called the *solstitial* points; and a circle, supposed to pass through the poles of the world and these points, is called the *solstitial colure.* The summer solstitial point is in the beginning of the first degree of Cancer, and is called the *æstival* or *summer* point; and the winter solstitial point is in the beginning of the first degree of Capricorn, and is called the *winter* point. These two points are diametrically opposite to each other.

SOLUTION. See *Cohesion.*

SOLWAY MOSS; a tract of land in Cumberland, celebrated for an eruption of a very remarkable kind, which is thus described by Mr Gilpin:—"Solway moss is a flat area about seven miles in circumference. The substance of it is a gross fluid, composed of mud and the putrid fibres of heath, diluted by internal springs, which arise in every part. The surface is a dry crust, covered with moss and rushes, offering a fair appearance over an unsound bottom, shaking with the least pressure. Cattle, by instinct, know and avoid it. Where rushes grow, the bottom is soundest. The adventurous passenger, therefore, who sometimes, in dry seasons, traverses this perilous waste, to save a few miles, picks his cautious way over the rushy tussocks as they appear before him. If his foot slips, or if he ventures to desert this mark of security, it is possible he may never more be heard of. On the south, Solway moss is bounded by a cultivated plain, which declines gently, through the space of a mile, to the river Esk. This plain is lower than the moss, being separated from it by a breastwork formed by digging peat, which makes an irregular, though perpendicular line of low, black boundary. It was the bursting of the moss through this peat breastwork, over the plains between it and the Esk, that occasioned the dreadful inundations which destroyed so large a district. The more remarkable circumstances relating to this calamitous event, were these: On the thirteenth of November, 1771, in a dark, tempestuous night,* the inhabitants of the plains were alarmed with a dreadful crash, which they could no way account for: many of them were then in the fields, watching their cattle, lest the Esk, which was then rising violently in the storm, should carry them off. In the mean time, the enormous mass of fluid substance, which had burst from the moss, moved slowly on, spreading itself more and more as it got possession of the plain. Some of the inhabitants, through the terror of the night, could plainly discover it advancing like a moving hill. This was, in fact, the case; for the gush of mud carried before it, through the first two or three hundred yards of its course, a part of the breastwork, which, though low, was yet several feet in perpendicular height; but it soon deposited this solid mass, and became a heavy fluid. One house after another it spread round, filled, and crushed into ruins, just giving time to the terrified inhabitants to escape. Scarcely any thing was saved except their lives; nothing of their furniture, few of their cattle. Some people were even surprised in their beds, and had the additional distress of flying naked from the ruins. The morning light explained the cause of this amazing scene of terror, and showed the calamity in its full extent; and yet, among all the conjectures of that dreadful night, the mischief that really happened had never been supposed. Lands which, in the evening, would have let for twenty shillings an acre, in the morning were not worth sixpence. On this well-cultivated plain, twenty-eight families had their dwellings and little farms, every one of which, except, perhaps, a few who lived near the skirts of it, had the world totally to begin again. Who could have imagined that a breastwork which had stood for ages should at length give way? or that these subterraneous floods, which had been bedded in darkness since the memory of man, should ever have burst from their black abode? This dreadful inundation, though the first shock of it was most tremendous, continued still spreading for many weeks, till it covered the whole plain, an area of 500 acres, and, like molten lead poured into a mould, filled all the hollows of it, lying, in some parts, thirty or forty feet deep, reducing the whole to one level surface." (Gilpin's *Observations on the Mountains and Lakes of Cumberland.*) In order to clear the arable and pasture land of this accumulation of moss, Mr Wilson, from Yorkshire, adopted a very ingenious plan. He formed, in the higher grounds, two large reservoirs, which he filled with water, the whole force of which he directed against a large knoll in front of Netherby house, and afterwards against the accumulated masses, which he succeeded in washing away into the channel of the Esk. Doctor Graham, of Netherby, had sent for a person to survey the ground, and estimate the expense of removing the moss in the ordinary way. The estimate was £1300; but while the matter was under consideration, Wilson suggested that it might be done cheaper; and by the method which we have mentioned, he effected it for less than £20. Another account of the eruption of this moss, by Mr J. Walker, of Moffat, will be found in the Philosophical Transactions for 1772, vol. lxii, p. 123. According to Mr Walker, the mossy ridge was reduced no less than twenty-five feet; but what is not easily explained, he makes the eruption take place on the sixteenth of December, 1772, whereas Gilpin places it on the thirteenth of November, 1771. Mr Walker mentions the remarkable case of a cow, the only one, out of eight in the same byre, that was saved. It had stood sixty hours up to the neck in mud and water; and when it was taken out, it did not refuse to eat, but it would not taste water, nor even look at it, without manifest signs of horror. It was soon, however, reconciled to it, and was then likely to recover.

SOLYMAN II. (called the *Lawgiver* by his own subjects, and the *Magnificent* by the Christians) was the only son of Selim I., whom he succeeded in 1520. Three days previous to the death of his father, and at the same time when Charles V. was crowned at Aix-la-Chapelle, he was proclaimed sultan. He had not been educated in the usual manner of the Ottoman princes, but, on the contrary, had been initiated in all the secrets of state policy. His love of justice appeared at the very commencement of his reign, when he returned the property which his father had taken from individuals. He restored the authority of the courts of justice, which had been entirely destroyed, and selected governors and other officers from persons who possessed property and were honest. "I intend," said he, "that they should resemble the rivers which fertilize the countries through which they flow, not the streams which break down all they meet." Gazeli Beg, the governor of Syria, had at first declared against Solyman, and involved a part of Egypt in his revolt; but he was overcome by the generals of Solyman, who also destroyed the Mamelukes in Egypt, and concluded an armistice with Persia. Having thus secured himself from disturbance on the side of Syria and Egypt, he besieged and took Belgrade in 1521. In 1522, he resolved to besiege the island of Rhodes, which had been in the possession of the knights of St John for 212 years. He wrote a haughty letter to the knights, in which he called on them to surrender, unless they wished to be put to the sword. The siege of Rhodes cost him many men; but, at length, the town, being reduced to extremity, was forced to surrender, December 26, 1522. The conqueror now turned his arms against Hungary, where he gained the battle of Mohatz, in 1526. He afterwards took Buda (1529), advanced to Vienna, and, in twenty days, made as many assaults upon this city, but was finally forced to raise the siege, with the loss of 80,000 men. In 1534, he marched towards the East, took possession of Tauria, but was defeated by Shah-Thamas; and, in 1565, his army met with the same fate before Malta as formerly before Vienna. In 1566, he took possession of the island of Scio, and ended his life, August 30 of the same year, at the siege of Sigeth, in Hungary, in the seventy-sixth year of his age, and four days before the taking of the fortress by the Turks. His victorious arms made him equally dreaded in Europe and in Asia. His empire extended from Algiers to the Euphrates, and from the extremity of the Black sea to the farthest limits of Greece and Epirus. His abilities were equally great for the conduct of affairs in peace and in war. As a general, he possessed a wonderful activity: his word was held sacred: he was a firm friend to justice, although his love for the sultana Roxalana, and her persuasions, prevailed upon him to put to death all his children by another sultana, to secure the succession to Selim her son. His cruelty tarnished his fame. After the siege of Mohatz, by his orders, 1500 of the most distinguished prisoners were placed in a circle, and beheaded, in presence of the victorious army. Solyman thought nothing impossible to be done which he commanded. When one of his generals sent him word that his orders to build a bridge over the Drave could not be executed, Solyman sent him a linen cord, with this answer: "The sultan, thy master, commands thee, without consideration of the difficulties, to complete the bridge over the Drave: if thou doest it not, on his arrival, he will have thee strangled with this cord, which announces to thee his supreme will." Solyman used his unlimited power to establish order and security in his dominions. He divided them into districts, of which each was compelled to furnish a certain number of soldiers. The produce of a certain division of country in every province was reserved for the support of the troops; and he provided for every thing connected with military discipline, and the equipment of soldiers, with the greatest care. He introduced a system for the regulation of the finances in his empire; and, that the taxes might not be too oppressive, he was very exact in his expenses. He was the greatest of all the Ottoman emperors, and extended his power widely, by force of arms, in Asia and Europe. Under his government the Turks attained their highest glory; but this was gradually lost under his successors, who seldom appeared at the head of their armies. He was in the highest degree ambitious, active, and fond of power; and every year of his reign was distinguished by some great enterprise. A faithful observer of his religion, he was less vicious, and much better educated, than his predecessor. He loved mathematics, and particularly the study of history. He wanted but few qualities to make him a great prince, but many to make him a good one. Those who reckon the emperors of Turkey from the conquest of Constantinople, call him Solyman I.

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* Three days' rain, of unusual violence, preceded the eruption.

SOMERS, Lord John, a distinguished lawyer and statesman, was the son of an attorney at Worcester, where he was born in 1652. He was entered a gentleman commoner at Trinity college, Oxford, and being destined for the legal profession, passed some time as clerk to a barrister, and, when called to the bar himself, evinced talents of a high order. His principles led him to oppose the measures of Charles II; and, on the accession of James II. he continued a firm opposer of the court, and acquired great credit as one of the council for the seven bishops. He heartily concurred in the revolution, and sat, as one of the representatives for Worcester, in the convention parliament, summoned by the prince of Orange, and was one of the managers appointed by the commons to confer with the lords on the word *abdicate*. In 1689, he was knighted, and made solicitor-general; in 1692, attorney-general, and lord-keeper of the great seal, the following year, in which capacity he displayed equal ability, integrity and gentleness. He was one of the first patrons of Addison, for whom he procured an allowance, to enable him to make the tour of Italy. In 1695, he was made lord high chancellor of England, and was raised to the peerage by the title of lord Somers, baron Evesham. Being now regarded as the head of the whigs, he made great exertions to moderate the zeal of that party. After the death of William, lord Somers spent his time in literary retirement, and was chosen president of the royal society. In 1706, he drew up a plan for effecting a union between England and Scotland, which was so much approved, that queen Anne appointed him one of the commissioners to carry it into execution. Upon a change of ministry, in 1708, he was nominated president of the council, but was again dismissed in 1710, and, in April, 1716, was carried off by an apoplectic fit, at the age of sixty-four. He was a patron of men of letters, and one of those who redeemed Milton's Paradise Lost from the obscurity in which party prejudice had involved it. Besides the many speeches and political tracts attributed to him, he translated some of Ovid's Epistles, and Plutarch's Life of Alcibiades. He also made a collection of scarce tracts, of which there has been published a selection, in four parts, each consisting of four volumes (4to.; new edition, 1809—1812, 12 vols., 4to., edited by Sir Walter Scott). His collection of original papers and letters was destroyed by a fire at Lincoln's Inn.

SOMERS' ISLANDS. See *Bermudas' Islands*.

SOMERSET, Earl of. See *Overbury*.

SOMERSET, Duke of. See *Seymour*.

SOMERSETSHIRE; an extensive county of England, bounded on the north by Gloucestershire and the Bristol channel, on the east by Wiltshire, on the south west by Devonshire, and on the south-east by Dorsetshire. Its greatest length from east to west is about 68 miles, and its breadth from north to south 47 miles. It is computed to contain 1,050,880 English acres. This county displays a great variety of soil and surface. The north-eastern quarter, including the country between Uphill on the Bristol Channel, and Frome on the border of Wiltshire, and bounded on the south by the hills of Mendip, is diversified by rocky eminences, declining towards the west into fertile plains, and near the sea into moorland tracts subject to inundation. The south-eastern portion of the county, on the confines of Wiltshire and Dorsetshire, consists of high downs appropriated to the pasturage of sheep, or raising corn; and from Shipton Mallet to Chard is a fertile tract, interspersed with fine meadows and orchards. The central district, intersected by rivers, comprises extensive fens and marshy moors, where dykes and ditches form the divisions of property, and the land is often covered by water. Towards the south-west, near the border of Devonshire, is the fruitful vale of Taunton Dean, whence the Quantock Hills extend north-westward to the Bristol Channel; further westward is the ridge of the Brandon Hills, and at the western extremity is the forest of Exmoor, lying partly in Devonshire. The loftiest eminence is Dundry Beacon in the northern part of the county, the summit being 1668 feet above the level of the sea. Landsdown, near Bath; Broadfield Down, north of Wrington; Blackdown, south-westward of Taunton; Glastonbury Tor; and Bratton, near Minehead, are hills of considerable altitude. The climate is as various as the soil; near the coast the weather is usually mild, even in winter, and it is almost equally temperate in the vale of Taunton, and in the level districts towards the south and east; on the hills of Exmoor, Brandon, and Quantock, the air becomes much colder, and storms are not unfrequent; in the central marshes the air is moist and foggy; on the heights of Mendip the cold is extreme, but as the country declines towards the estuary of the Severn, the atmosphere becomes temperate and pleasant, and the heat in summer is moderated by the sea breezes. The rivers of Somersetshire are numerous but not very considerable, most of them through their whole course being confined to this county. The Parret, rising on the border of Dorsetshire, flows northward, being joined near Muchelney by the Ile, and at Langport by the Yoo, or Ivel, on the east, afterwards by the Tone from Taunton on the west, it passes the town of Bridgewater, and pursues a winding course to the Bristol Channel. The Brue has its source in Selwood Forest, on the confines of Wiltshire, passes Bruton and Glastonbury, and after receiving a stream from Shepton Mallett and Wells, and some others, flows westward, and enters the sea a short distance northward of the preceding. The Ax, which rises in the Mendip Hills, passes by Axbridge, and falls into the Bristol Channel near Black Rock. The Ex, which has its origin in Exmoor Forest in this county, soon passes into Devonshire. Somersetshire has long been famous for the fattening of cattle, and the richness of its dairies. The cider made here is also of a very superior quality, and is the principal drink of the common people throughout the county. Barley is not much grown, but wheat, oats, and bear, together with flax, teazels and woad, are extensively cultivated. The principal mineral products are coal, found only in the hilly tract between Mendip and the Lower Avon; lead, lapis calaminaris, manganese, copper-ore, spars and crystals, from the Mendip hills; from the Quantock hills lead and copper ores have been excavated; calamine from the Broadfield downs and other hills; iron ores from various places; and in the rocks near Porlock have been found small quantities of silver. Granite has been quarried a few miles north-east of Taunton; and at Coombe Down great quantities of excellent freestone for building. There are mineral springs of various kinds in different parts of the county, of which the most important are the chalybeate warm springs at Bath, discovered at a very early period.

There are extensive manufactories of woollen cloths in Somersetshire. Linen cloths, such as dowlas, bed-tickings, and sail-cloths, together with lace, silk, and crape, are also manufactured here. The foreign commerce of the county is chiefly carried on at Bristol. The cities are Bath and Wells, Bristol being only in part within this county. The boroughs are Bridgewater, Ilchester, Milborne Port, Minehead and Taunton; and the market-towns Axbridge, Bruton, Castle Carey, Chard, Crewkerne, Dulverton, Dunster, Frome, Glastonbury, Ilminster, Longport, Milverton, South Petherton, Shepton Mallet, Somerton, Wellington, Wincanton, Wiveliscombe, Yeovil, and Pensford; but of this last the market is entirely discontinued. The county, which is co-extensive with the diocese of Bath and Wells, is divided into the three archdeaconries of Bath, Wells, and Taunton. Population of the county in 1821, 355,314; in 1831, 403,908.

SOMERVILE, William, an English poet, was born in Warwickshire, in 1692, and educated at Oxford. He early cultivated his talent for poetry, and inherited a considerable paternal estate, on which he chiefly lived, mingling an ardent attachment to the sports of the field with the studies of a man of letters. He was courteous, hospitable, convivial; but carelessness in pecuniary matters, by involving him in embarrassments, preyed on his mind, and produced habits which shortened his life He died in 1742. As a poet, Somervile is chiefly known by his Chase, a poem in blank verse, which maintains a respectable rank in the didactic and descriptive class. Another piece, connected with the same subject, is entitled Field Sports. His Hobbinol, or Rural Games, is a kind of mock heroic. His other pieces are not fitted to increase his reputation. See Johnson's *Lives of the Poets.*

SOMME. See *Department.*

SOMNAMBULISM designates the well-known phenomena of sleep-walking. It is also used for a certain state of a person under the influence of animal magnetism. The phenomena of sleep-walking are very singular, the person affected performing many voluntary actions, implying a certain degree of perception of the presence of external objects. This affection is commonly considered as an imperfect degree of sleep. "In the case of the somnambuli," says Dugald Stewart, "the mind retains its power over the limbs, but possesses no influence over its own thoughts, and scarcely any over the body, excepting those particular members of it which are employed in walking." Sleep-walking is not unfrequently connected with the changes of the moon; when people will rise, walk about, do certain things, and go to bed again. The placing of a wet cloth by the side of the bed of such a person, so as to wake him immediately when he steps on it, is recommended as a means of curing this habit. The subject is very obscure, the cases not having been philosophically studied to a sufficient extent. As to somnambulism in animal magnetism, the votaries of this science believe that the brain—the peculiar seat of the higher faculties—rests during somnambulism, but that the vital power of the nervous system of the abdomen is heightened so much, that it can supply, in a degree, the place of the brain, and afford the means of perception. Hence a letter placed on the stomach of a person in the state of somnambulism can be read by him! We must refer the reader to the works mentioned in the article *Magnetism, Animal,* viz. those of Wolfarth, Kieser, &c.

SOMNUS (Latin, *sleep*), or HYPNOS (ὕπνος); in ancient mythology, the god of sleep, son of Nox (Night), and twin brother of Mors (Death). He dwelt at the western extremity of the world, where the imagination of early poets placed all awful beings. The Orphic hymn (84) calls Lethe (Oblivion) his sister. His power is great, and both mortals and gods are subject to him. Some of the later poets describe him as a handsome youth, some as a dull and lazy god, whose dark abode no ray of Phœbus enters. (*Ovid.*) He is sometimes represented with a wreath of poppies; sometimes with a horn, in which he carries dreams. According to some poets, he produces sleep by the motion of his wings; according to others, he sprinkles drops of Lethe on the eyes of mortals. Ovid gives him a thousand children, but mentions only Morpheus, Icelos, Phobetor and Phantasos. See *Morpheus.*

SON (in the Tartar languages, *river*); a syllable which appears in many geographical names, as *Karason* (black river), *Akson* (white river).

SONATA (*sonata*, or *suonata*, Italian, from *sonare*, to sound) is a simple piece of instrumental music, intended to express various feelings in different passages, according to the character of the instrument used. It was originally designed for one instrument only, principally for the violin: afterwards for the piano almost exclusively. Subsequently, sonatas were composed, in which the piano or harpsichord is accompanied by other instruments; for instance, the violin or flute, horn, clarionet. But these latter were also called *trios.* The union, however, is not pleasing, as the tone of the harpsichord is too weak, and the pianoforte does not harmonize well with any other instrument. The expression of the sonata is to be determined by the character of the instrument—a circumstance which modern composers have not sufficiently observed. In sonatas for several instruments, the principal instrument is either only assisted (as is the case, for instance, with many sonatas for the pianoforte accompanied by the violoncello), or the instruments alternate, so as to make the sonata a dialogue of instruments. Formerly the sonata usually began with a lively passage, followed by an andante or adagio; then came a minuet with a trio (afterwards a scherzo); and lastly a rondo or presto: instead of the second, third or last division, variations are also made use of. The old arrangement, however, is no longer adhered to, and sonatas are now written in two, three, or four divisions. But still it is a complete musical piece, in which the passages are connected by a common character. An easy or short sonata is called *sonatina.* The most distinguished composers of sonatas are Bach, Haydn, Beethoven, Clementi, Cramer, Hummel, Weber, Moscheles, Kalkbrenner, Field.

SONNET (Italian *sonetto*); a species of poetic composition, consisting of fourteen lines of equal length—the most ancient form of Italian poetry. It was used at an earlier period among the Provençals; and, in the thirteenth century, count Thibaut de Champagne mentions it as a species of poetry universally used and known. A Provençal sonnet, written in 1321, and entirely conformable to the rules for this species of poem, in which William de Almarichi congratulates king Robert of Naples, is to be found in Nostradamus, from whom Crescembeni borrowed it in his *Storia della volgar Poesia* (t. i.). In Italy, the sonnet was naturalized about the middle of the thirteenth century, when Italian poetry became imbued with the spirit of the Provençal. Fra Guittone, of Arezzo (died 1295), the first Italian poet of note, was also the first who gave to the sonnet, at least in Italy, that regular form which Petrarca (died 1374) carried to perfection, and made a model. In France, the sonnet was not cultivated after the extinction of the Provençal poetry, until the sixteenth century; but the *bouts rimés* reduced it to a mere play on words. In Germany, it first came into use in the first half of the seventeenth century. It has been of late much cultivated there, but is not adapted for the language, on account of its poverty in rhymes. In fact, the strict rules of the rhyme often compel the poet to accommodate the ideas to the expression, even in languages which, like the Italian, have a great number of rhymes for almost every final syllable; and in German, in which many final syllables have very few rhymes, there are many words which almost always are made to rhyme with certain others; so that the occurrence of one of them in a sonnet inevitably suggests to the reader what words are to follow, so as to destroy the great pleasure of rhyme. A sonnet may produce a good effect when the subject is well chosen, and naturally accommodates itself to the divisions of the poem; but it requires much skill to make it pleasing; and Petrarca himself sometimes becomes tame, from the constraints to which he is subjected. Göthe wrote but few and their subject is the difficulties of the form, and the pleasure of overcoming them. The sonnet is often attempted by persons who find it easier to furnish rhymes than ideas; and the number of insipid sonnets in Italian and Spanish is immense. In English, also, there is an abundance of them. The most successful writers of English sonnets are, Milton, Drummond of Hawthornden, Warton, and Wordsworth.

The sonnet properly consists of fourteen iambic verses of eleven syllables, and is divided into two chief parts: the first consists of two divisions, each of four lines (*quadernario, quadrain*); the second of two divisions of three lines each (*terzina*). The quadrains have two rhymes, each of which is repeated four times, and, according to the Italian usage, either so that the first, fourth, fifth and eighth verses rhyme, and, again, the verses between them, the second, third, sixth, seventh (*rima chiusa*); or, which is rarer, the rhymes alternate (*rima alternata*); or, what is still rarer, the first quadrain is written in the first way, and the second in the second. In the two terzine there are either three rhymes, each twice repeated, or two rhymes, thrice repeated, in all positions. The Italians, who use hardly any form for lyrical poetry but the sonnet and canzone, have invented varieties of it, such as the Anacreontic sonnets, with lines of eight syllables, and those with a *coda.* The sonnet generally contains one principal idea, pursued through the various antitheses of the different strophes, and adorned with the charm of rhyme.

SONNITES. See *Sunnites.*

SONORA; one of the states of the Mexican confederacy (see *Mexico*), lying on the Pacific ocean, on which it has a sea-coast of 900 miles, with several good ports. It is generally hilly, a large portion of it lying on the table land. It abounds in mineral wealth: gold is found in washings and mines, and the silver mines are rich and numerous. The soil is also fertile. The capital of the state is Arispe, with a population of 7600 souls. Cinaloa (9500), Sonora (6400), and Culiacan (10,800), are among the principal towns.

SOODRAS. See *Hindoos.*

SOOT. See *Lamp-Black*, and *Manure.*

SOPHI: a professor of Sufism. q. v.

SOPHIA, CHURCH OF ST. The foundation of this magnificent temple in Constantinople was laid in the sixth century, in the reign of Justinian; and the work was completed by Anthemius Tralles, the most celebrated architect of his age, with the aid of Isidorus of Miletus. Anthemius was the first who undertook to erect a dome on four arcades: he chose for this purpose the form of a Greek cross. Twenty years after its dedication, in 558, the dome was shattered by an earthquake. Another Isidorus, nephew of the former, restored it, but raised it twenty feet higher than before, giving it an elliptical instead of a spherical form. The curvature of the dome is so slight, that the depth is equal to only one sixth of the diameter, which is 115 feet; the crescent, which has supplanted the cross on the centre, however, is 180 feet from the ground. This flattened form of the dome has a fine effect; and if the architect attempted to imitate the arch of the heavens, Dalaway pronounces the attempt more happily accomplished in the mosque of St Sophia than in St Peter's at Rome. The ceiling of the dome over the twenty-four windows is ornamented with mosaic work, in the form of small cubes, of a vitreous substance, which Vitruvius calls *smaltum.*

Besides containing four colossal figures, which represent seraphim, the ceiling is gilt all over, but defaced by time. The arrangement of the capitals is not conformable to rule; they belong to no particular style, and have no entablature. With the principal dome are connected two half domes and six smaller ones, which add to the general effect. The form of the building is a Greek cross, inscribed in a quadrangle; but the interior area from east to west forms an ellipse. The mass of the edifice is of brick, but it is overlaid with marble: the floor is of mosaïc work, composed of porphyry and verd antique. The great pillars which support the dome, consist of square blocks of stone, bound with hoops of iron. The gallery round about is formed by sixty-seven columns, eight of which are porphyry (from Aurelian's temple of the sun, at Rome). Eight others, of green jasper, were taken from the temple of Diana, at Ephesus. The vestibule has nine bronze doors, ornamented with basso-relievos. The interior of the mosque is 243 feet in width, from north to south, and 269 in length, from east to west. The exterior of St Sophia has many defects and incongruous additions; among others, four minarets, made since it became the chief mosque of the Turks (1453), have given it the appearance of an irregular mass.—See Gibbon's *Decline and Fall of the Roman Empire* (ch. 40 and 68). Grélot, *Voyage de Constantinople* (with engravings); Banduris, *Imper. Orient.* (Paris, 1711, 2 vols., folio): and Mouradgea d'Ohsson's *Tableau Général de l'Empire Ottoman* contain representations of it.

SOPHISM; a fallacy in reasoning. (See *Sophists.*) Sophisms are usually divided by logicians into those in the words (*in dictione*), and those in the matter (*extra dictionem*). Whately divides them into those in which the conclusion does not follow from the premises, and in which the reasoning is, therefore, false, or logical fallacies; and those in which the conclusion does follow from the premises, or material fallacies. For the various kinds of sophisms—*petitio principii*, *ignoratio elenchi*, paralogism, &c.—we must refer the reader to treatises on logic.

SOPHISTS. This name of a peculiar class of teachers of eloquence, philosophy and politics, which flourished in Greece in the fifth century before the Christian era, signifies properly wise men (*σοφος*, wise), and was assumed by them out of learned pride. But as the later sophists strangely perverted the science which they taught, made themselves ridiculous by their arrogance, and drew upon themselves the hatred and contempt of reasonable men, by the pernicious and corrupt principles which they advocated with the utmost shamelessness, the title became a term of reproach, and was applied to men who seek to confound the understanding by vain subtleties and false axioms, to shake the force of the pure precepts of religion and morals. We find the names of a considerable number of sophists, mentioned in Grecian history, differing not less in the kind and degree of their knowledge than in the places of their birth. The most celebrated are Gorgias of Leontium, in Sicily, Protagoras of Abdera, Hippias of Elis, Prodicus of Cos, Thrasymachus of Chalcedon, in Asia Minor. All these were contemporary with Pericles and Socrates, and resembled each other in being teachers of natural philosophy, geometry and arithmetic, astronomy, music, theology, morals, logic and eloquence. This variety of subjects, which they taught among a people of the highest refinement, proves that they had cultivated their powers to a certain degree; and, in fact, they rendered important services to learning, as they were the first cultivators of rhetoric as well as of grammar and morals. They taught all these sciences in attractive language, both orally and in writing, and were every where received with admiration. Besides, they often distinguished themselves in the service of their country. At least, it is certain that Gorgias, Prodicus and Hippias were employed in difficult negotiations. But brilliant as the sophists appear when viewed as men acquainted with all the learning of their age, and successfully extending its limits, it is not to be denied, that, when viewed on the dark side, they are deserving of abhorrence. The unblushing effrontery with which they set themselves up for the sole possessors of all wisdom, human and divine, shows them to have been impostors or conceited pretenders. In the next place, they abused knowledge to gratify the basest of passions—avarice; and, finally, they preached irreligion and immorality, and attacked whatever was held dear and sacred by the people. They denied the existence of the gods, attributed every thing to chance, and all religious ideas to the invention of some artful individual, who, after men had long dwelt in the woods like wild beasts, inspired his barbarous brethren, by the fiction of avenging gods, with fear, and compelled them to submit to a better state of things. They maintained that the right of the strongest was the only law of nature, and that all actions were indifferent—neither good nor bad. This distinction was first made by positive laws; and hence different nations form different estimates of the morality or immorality of the same actions. It is folly, they asserted, to point out what is good or just; for such a course of conduct would be connected with so many disadvantages that no man of common sense would adopt it. Proceeding on these principles, they declared every species of fraud, robbery and violence, innocent. They maintained that moderation and self-denial were marks of a weak mind, and that man's true happiness consists in the gratification of all his desires. Such were the infamous doctrines of the Sophists; and they appear still more hateful, when we remember that they were adopted merely for the purpose of attracting followers, and satisfying their own love of gain. For the same men, who so shamelessly preached up vice, were equally eloquent in praise of virtue, when they were afraid of offending their hearers or losing their wealthy disciples. If money was to be got by sound precepts of morality, they made the most florid speeches in praise of virtue. An example of this is the beautiful story of Prodicus, called the Choice of Hercules, one of the most elegant and ingenious fictions of antiquity. It is preserved by Xenophon, in his Memorabilia of Socrates (book ii., chap. 1). From the Sophists, likewise, proceeded the pernicious art of defending the most contradictory opinions, and of making the most evident truths appear uncertain, and the most extravagant absurdities probable. They effected this by false reasonings and captious questions, by which they confused their opponents. This art was the more dangerous in the hands of these corrupters of learning, as it enabled them to pass themselves off on inexperienced young men as possessors of universal knowledge, and to persuade them that they knew all the secrets of heaven and earth. Many of their arguments and conclusions were extremely absurd; but at first sight they surprised and astonished the hearer. Thus Gorgias, in a treatise on nature, proved, 1. that there is nothing real; 2. if there were any thing real, it could not be known; and, 3. if it were capable of being known, it could not be communicated by words. Prodicus of Cos proved, in a discourse cited by Æschines, that life is not a desirable gift, and attempted to remove the fear of death by declaring death a nonentity; it does not concern the living, for they have nothing to do with it; nor the dead, because they are no more. By similar sophistry, Protagoras destroyed the distinction between truth and falsehood. He maintained, that man is the measure of all things, and that nothing really exists but what he conceives, and in the way in which he conceives it; and as every assertion may be met by another, it is folly to dispute, and refutation is absolutely impossible. These notions relate to important subjects; but among the host of disciples, who followed the Sophists, there was a multitude who endeavoured to make themselves conspicuous by the most absurd and ridiculous assertions. Plato has drawn one of these characters in his Dialogue of Euthydemus, which, in the persons of Euthydemus and Dionysodorus, describes the whole tribe, and holds them up to contempt. A single example will suffice. Dionysodorus says, "Tell me, Ctesippus, have you a bitch?" *C.* "Yes, and a very bad one too." *D.* "Has she young?" *C.* "Yes; just like herself." *D.* "Is not a dog their father?" *C.* "Yes; I saw them couple myself." *D.* "Is he not your dog?" *C.* "Certainly." *D.* "Then he is your father! So your father is a dog, and the puppies are your brothers!" On such miserable verbal quibbles did these learned disputants lay claim to the title of profound and subtle inquirers. But however little intrinsic value their teachings had, they served to set the mind at work; and we cannot help regretting the total loss of their writings, as we can now only judge of their tenets and practice from the accounts of others. These accounts, however, are so full and consistent that we should probably find no cause for changing our opinions, if we had their own works. The most flourishing period of the Sophists was from the Persian war, 490 B. C., to the death of Socrates, ninety years later. A rapid glance at the causes of the rise and success of such a class of men in Greece, is necessary. It is, in fact, however, not more wonderful than that a Socrates should flourish there: the versatile genius of the Greeks exerted itself in every form imaginable. Besides, the state of scientific and religious knowledge among the Greeks, at that time, will sufficiently account for the appearance of the Sophists. Learning was in its infancy; science was but just beginning to flourish; morals and theology had never yet been made the subject of deep and critical examination. These great services were first performed by the Socratic school; and it is not strange that selfish and superficial men erred so egregiously respecting those lofty subjects, particularly where the Eleatic school denied the reality of experience and the evidence of the senses, and perverted logic into dialectics. Considering also the democratical constitution of the states of Greece, which allowed unlimited freedom of investigation, it will appear not less natural for Sophists to have sprung up among the Greeks, than impossible for them to have arisen among the Hebrews or Romans.

SOPHOCLES. This immortal poet, who carried the Greek drama to perfection, was probably about twenty-five years younger than Æschylus, and fifteen years older than Euripides, whom, however, he survived. They both died in the third year of the 93d Olympiad. The second year of the 71st Olympiad (B. C. 495) is assigned as the period of his birth. He was descended from a rich and noble family in Athens (or rather in Colonos, a village belonging to Athens). The advantages of a fine person (though nature had denied him a good voice) and his brilliant genius contributed to open a splendid career before him. Though the fame of Sophocles, as a poet, has eclipsed his reputation as a statesman, yet he is mentioned in the history of Athens as an archon, with Pericles and Thucydides, in the war against Samos; and his name is recorded among the priests of the city. His death, which happened in his ninety-fifth year, is so enveloped in obscurity, that, by some, he is said to have expired from excessive joy, in consequence of the unexpected success of one of his dramas at the Olympic games; and by others, to have closed his life during the recitation of his *Antigone*, then just completed. In his eightieth year, an ungrateful son charged him before a judicial tribunal with being incompetent, from age, to manage his domestic affairs; but, on his reading to the judges his Œdipus at Colonos, which he had just written, the complaint was dismissed, and he was carried to his house in triumph. On his tomb was erected a marble statue of Bacchus, with the tragic mask of Antigone in his hand. Sophocles began his career as a lyric poet; but, at the age of twenty, he devoted himself to the drama, and became the rival of Æschylus, whom he surpassed in the popular favour. The first victory which he gained over his predecessor was brilliant: the first prize was awarded to him nineteen times; the second still oftener, but never the third. His reputation soon spread to foreign countries, and several princes invited him to their courts. But he remained faithful to his country. The Greek drama is seen in its perfection in his productions. Of his numerous plays, which some have estimated at 130, only seven have come down to us; but these are all complete and masterly performances: 1. the Ajax; 2. Electra; 3. Antigone; 4. King Œdipus; 5. Œdipus at Colonos; 6. the Trachinians; 7. Philoctetes. We will give a short sketch of their contents, remarking, by the way, that we can distinguish no trilogies and tetralogies, as in Æschylus; and that, according to the Scholiasts, he introduced the practice of contending for the prize with a single piece; so that the distribution of the tragic part into trilogies (three parts or distinct pieces), to which a satirical piece was often appended (the whole being styled a *tetralogy*), almost wholly went out of use. Sophocles also first introduced a third actor, and limited the lyrical element or chorus, which Æschylus frequently made the chief part of the tragedy. In the Ajax, we see that hero, wounded in his honour by Ulysses, in the contest for the armour of Achilles, seized with frenzy: on recovering from which, as if blinded by the dreadful discovery, he destroyed his own life. The Electra belongs to the tragic scenes of the family of Pelops. It contains the murder of Clytemnestra (who, with her lover, Ægisthus, had assassinated her husband Agamemnon) by the hand of her son Orestes, under the direction of his sister Electra. By the art of the poet, Electra, who would naturally appear as a subordinate character, is made the heroine of the action. In Antigone, we see the highest triumph of female tenderness. Antigone, the wretched daughter of the wretched Œdipus, and guilty of no crime but that of attaching her own fate to that of her father, is the only being in Thebes who does not submit to Creon, the new sovereign. Her heroism is of the highest and most feminine character. Her brother Polynices, who was slain before Thebes, in a single combat with his brother Eteocles, in which both fell, and whose burial had been prohibited by Creon, owed a grave to his sister. After performing this last office of affection with the tenderness of a woman, but an unshaken firmness, she goes her sad and solitary way to the cold, stony bed prepared for her. According to Solger, the point of the tragedy consists, not in the elevation of the heroine, but in the conflict of divine and human laws. The King Œdipus, and Œdipus at Colonos, are parts of one story; and the tragic points in the history of Œdipus are thus exhibited in a terrific double picture. These tragedies are founded on the principle that man cannot escape his destiny, and that the profoundest wisdom only draws the cords of fate more tightly, till that almighty Power is appeased by voluntary penance and humiliation. In the former, a dreadful mystery is suddenly revealed, while the wretched victim trembles to behold the unwelcome light. The unconscious patricide, and husband of his mother, as one veil after another falls away, hurries back to the darkness, which has been removed from around him, by tearing out his eyes, and flees into miserable exile. The counterpart of this moving picture is drawn in the Œdipus at Colonos, weighed down by guilt and age. The darker lines of the horrible event are now softened by time. His crime has been expiated by long sufferings. In the grove of the avenging goddesses, by whom the whole dreadful tissue had been woven, his wretched wanderings end. Œdipus finds at Colonos near the walls of Athens, in the solitary abode of the Furies, rest and a grave. The Trachinians is founded on the history of Hercules; Dejanira, in the excess of her love, becomes the murderer of the hero who is taken, as it were, in the snares of fate itself, like Agamemnon, only that, in the latter case, the victim is more innocent than Hercules, and, in the former, the murderer is more guiltless than Clytemnestra. Philoctetes, the heir of the weapons of Hercules, languished for years on the desolate Lemnos, where he had been deserted by the ungrateful Greeks during a magic slumber, which, after every attack of pain, gave him some relief. But fate at length pities him, and compels his enemies to search for him, as it was decreed that, without the bow of Hercules, Troy could not be taken. This exposes him to new sufferings. Neoptolemus, the generous and worthy son of Achilles, is appointed to rob him of his quiver, and thus compel the defenceless Philoctetes to go against Troy. But the frank and honest Neoptolemus is incapable of carrying on such a design; and Hercules now appears bringing reconciliation, promising health, and persuading Philoctetes to pardon the ingratitude of the Greeks, and to comply with their request. The distinguishing characteristic of the Greek drama is simplicity. Thence its precision and perfection of form; thence its little external ornament, the accuracy with which the characters are defined, the finish of the colouring, the keeping of the whole, and the perfection of the versification. The unities of time and place are strictly observed; the plot is seldom intricate, but is skilfully contrived, and the diction is lofty and pure. The beautiful rather than the strange and awful, as in Æschylus, than the tender, as in Euripides, is its predominant feature. (See *Drama*) In all these qualities, Sophocles excelled, and was therefore the finest model of Grecian poetry. The characters of Sophocles are undoubtedly the most perfect, distinct and individual that can be drawn, and, at the same time, arrayed in all the charms of ideal representation. His choruses have always been celebrated as the finest productions of dramatic poetry. No tragic poet, in ancient or modern days, has written with so much elevation and purity of style. The versification of Sophocles stands alone in dignity and elegance, and his iambics are acknowledged to be the purest and most regular. Of the modern editions of his tragedies, the best are those of Brunck (Strasburg, 1786, 2 vols., 4to., and 4 vols., 8vo.; 1789, 3 vols.), and Erfurdt (a small edition, continued by Hermann, Leipsic, 1809—25, 7 vols., and a larger, 1802, 6 vols.). The tragedies have been translated into English by Franklin and Potter.—See Lessing's *Leben des Sophocles;* Jacob's *Character of Sophocles*, in the *Nachtrage zu Solger*, 4th vol.; and Solger's *Nachlass* (1828).

SOPHONISBA. See *Masinissa.*

SOPRANO, in Italian (*discantus*, Latin; *le dessus,* in French), in music, denotes the highest vocal part, which is only sung by boys, women and castrates, hence the name of *sopranos*, or *sopranists*, applied to the last of the three. There is a great difference in the voices of these three descriptions of singers. That of boys has sometimes quite a peculiar and affecting charm. According to the compass of the tones, the descant is divided into a higher and lower *soprano;* second descant is equivalent to *alto;* but the tones of descant are sharper, lighter, finer. The compass of a common descant is from $\bar{c}$ to $\bar{\bar{c}}$, and is quite sufficient for a voice of the chorus. A high descant, necessary for the bravura song, can reach as high as $\bar{\bar{\bar{f}}}$ $\bar{\bar{\bar{g}}}$; the lower descant, also called *mezzo soprano*, reaches from g or a to $\bar{\bar{g}}$ or $\bar{\bar{a}}$. Seldom, however, will there be found a complete compass, with complete equality of the tones from g to $\bar{\bar{c}}$. Generally, the grace of the more important middle tones is lost by the violent exertion to produce the higher tones. To the soprano belongs the melody. It is also capable of variegated ornaments and runs, since the higher tones are by nature more appropriate to these. Since high tones depend on quick vibrations, high voices are able to speak and sing quicker than deep voices. For this reason, and in this view, the soprano is the chief or leading part, to which the composer must pay particular attention. Hence it is highly important for him to understand thoroughly the nature and capacity of the soprano voice, in order to know what it can perform with ease, and, without unfavourable exertion, what are the natural divisions of the voice, &c. The same knowledge is necessary for the singer. The violin clef is now almost universally used instead of the descant clef.

SORB APPLE; the fruit of the service tree. See *Service Tree.*

SORBONNE; originally a college for the education of secular clergymen at the university of Paris, so called after Robert of Sorbon, in Champagne, a theologian of Paris, who founded it during the reign of St Louis, about 1250, and endowed it with an income which was subsequently much increased. This institution, the teachers in which were always doctors and professors of theology, acquired so much fame that its name was extended to the whole theological faculty of the university of Paris, which was called, till the end of the eighteenth century, *Sorbonne*. Its opinions and decrees had a decided influence upon the character of Catholicism in France. The kings seldom took any steps affecting religion or the church without having asked the opinion of the Sorbonne; and, even without the limits of France, its opinions were often esteemed more highly than those of other academies. Not less inimical to the Jesuits than to the reformation, the Sorbonne steadfastly maintained the liberties of the Gallican church, opposed the bull *Unigenitus;* and, in the Jansenistic disputes, though it could not be said to take part with the society of Port-Royal, yet was always opposed to the Jesuits. In later times, the Sorbonne devoted itself much more to the defence of the rights of the church than the perfection of its doctrines and practice. Its spirit often degenerated into pedantic obstinacy, and not unfrequently into blind zeal for the letter of ancient doctrine; so that it formed a striking contrast to the acute philosophers, *beaux esprits* and freethinkers of the eighteenth century; and its condemnation of the writings of Helvetius, Rousseau, and Marmontel, subjected it to much derision. The Sorbonne, therefore, had long outlived its fame, when the revolution put an end to its existence. The candidates for the degree of doctor in the Sorbonne were subjected to a severe trial of their patience. They were obliged to defend their theses from six o'clock in the morning to six in the evening uninterruptedly, and were merely allowed a slight refreshment in their desk.

SORDINO (*Ital.*); a small instrument of copper or silver, applied to the bridge of a violin, or violoncello, to render the sound fainter, by intercepting the vibrations of the body of the instrument.

SORELLE, OR SOREL; a river of Canada, which flows from lake Champlain into the river St Lawrence, forty-five miles below Montreal. It is sixty-nine miles long.

SORITES, in logic; a string of syllogisms in an abridged form, in which the predicate of the first proposition is made the subject of the next, and so on to any length, till finally the predicate of the last of the premises is predicated of the subject of the first. A sorites (from σωρος, a heap) has as many middle terms as there are intermediate propositions between the first and the last; and consequently it may be drawn out into as many syllogisms.

SORREL. The true sorrel (*rumex acetosa*) has long been cultivated in Europe for its leaves, as spinage and salad. They have an acid and slightly astringent taste, are cooling, and possess antiscorbutic properties. They are often put in refreshing drinks, and administered in cases of fever, &c.; but their most general use is for culinary purposes. The stems are upright, a foot and a half or two feet high, provided with a few petiolate, oblong, arrow-shaped leaves on the inferior part of the stem, and lanceolate, sessile ones above. The flowers are reddish or whitish, and are disposed in branching, upright racemes. The sheep's-sorrel (*R. acetosella*) is less than the preceding, but resembles it in habit, as well as in its sensible properties. The leaves are hastate. All domestic cattle are fond of the species of sorrel.

SORREL TREE (*andromeda arborea*). This tree sometimes attains the height of fifty feet, with a trunk twelve or fifteen inches in diameter. These dimensions are remarkable in a genus otherwise consisting entirely of shrubs. It inhabits exclusively, the range of the Alleghanies from Virginia to Georgia. The leaves are four or five inches long; oval-acuminate, and finely toothed; downy in the spring, but becoming smooth as they attain their growth. The flowers are small, white, disposed in long spikes, which are united in groups, and render the tree highly ornamental. The corolla is monopetalous, ovate, and downy. The name has been applied on account of the acidity of the leaves. These last, in drying, become black, and are sometimes used for imparting this colour to wool, when sumac cannot be procured. The wood is of a pale rose colour, very soft, burns with difficulty, and is wholly rejected in the arts. This tree is well adapted for an ornamental plant, as it is capable of enduring a cold climate, and the flowers begin to show themselves when it is only five or six feet high.

SOUBISE, CHARLES DE ROHAN, prince de, marshal of France, born in 1715, was, at the beginning of the seven years' war, perhaps the richest nobleman in France; and, without military talents, but merely as the favourite of Pompadour, received the command of a separate division, which, however, was subordinate to the main army under marshal d'Estrées—a circumstance which deeply wounded his pride. In the summer of 1757, at which time he was lieutenant-general, he therefore separated from the main army, and joined the imperial forces, with the purpose of delivering Saxony from the Prussians. Having reached Gotha, he allowed himself to be surprised by the Prussian general, who occupied the place intended for Soubise, at a feast in the ducal palace. Confiding in his superior numbers, Soubise next attempted to surround Frederic in his camp at Rossbach, but was suddenly attacked on the flank, and his troops were entirely routed. The loss of this battle, and the general ridicule which followed it, did not prevent his being again placed in command, in 1758, when he was more successful, by the aid of the duke of Broglio, who was associated with him. He received the marshal's staff in reward for his services. After the peace, he continued for some time in the cabinet, and died in 1787.

SOUBRETTE; a name given, in the French theatre, to the ladies' waiting maids; hence it is used for a subaltern and intriguing female in general.

SOUDAN. See *Nigritia.*

SOUL. What is the soul? The explanation of the soul is involved in this great difficulty, that the thinking, by which we arrive at our results concerning its nature, is an act of the soul itself; and can a single function show the nature of the power from which it proceeds? Impossible as this seems, the human mind has at all times drawn a picture of the soul, and ascribed properties to it which distinguish it from every thing divisible and transitory. Hence, with the exception of inquirers like Democritus and Epicurus, who considered every thing as composed of original atoms, or strove to explain every thing from the changes of physical organization, men have always attributed to the soul the qualities of simplicity, volition, immateriality, and immortality. Plato proposed to himself the double question, What was the state of the soul before its union with the body? and what will it be after death? It was a noble conception of this philosopher, that the soul, before its temporal existence, was imbued with the pure ideas of truth, beauty, and virtue (*Platonic præexistence*), which, though impaired in this world of sensible phenomena, still remain in a degree, and may be freed by effort from the influence of disturbing causes. As the ideas of truth, beauty, and virtue are infinite, and each of them forms a characteristic of the human soul, and strives to elevate it above every thing finite and concrete, we may conclude that the soul itself must be infinite. But connected with the quality of infinity are those of immateriality, freedom, and immortality. The original faculties of the soul afford further assurance of its elevated nature. Conscience, faith, the deep longing for a higher good, seem inconsistent with a finite nature. The Stoics and Plato conceive the soul to partake both of a material, or sensual, and an intellectual, or rational nature.

SOUND. See *Acoustics*, and *Ear*.

SOUND (properly *Oresound*, or *Oeresound*); the strait between the Danish of Zealand and the Swedish province of Schonen, which forms the usual passage from the North sea into the Baltic. The narrowest part, at Elsinore, is about 2½ miles wide, and is commanded by the Danish fortress of Cronburg on Zeeland. The crown of Denmark has, from time immemorial, commanded not only the passage through the sound, but also through the two other straits connecting the North sea and the Baltic, the Great and Little Belt, and imposes a toll upon all vessels passing in and out, which is paid at Elsinore. French, British, Dutch and Swedish vessels pay one per cent. on the value of their cargoes; those of other nations, and even Danish vessels, pay 1¼ per cent. The Dutch ships are only required to show their papers; other ships must submit to a search. The annual amount of this toll is about £135,000. The number of ships, up and down, in 1827, was 13,016; of which 5199 were British.

SOUNDING; the operation of trying the depth of the water, and the quality of the ground, by means of a plummet sunk from a ship to the bottom. Two plummets are used, one called the *hand lead*, weighing about eight or nine pounds; and the other, the *deep-sea lead*, weighing from twenty-five to thirty pounds: both are shaped like the frustum of a cone or pyramid. The former is used in shallow waters, and the latter at a great distance from the shore, particularly on approaching the land after a sea-voyage. The lines employed are called the *deep-sea lead* and the *hand-lead line*. The hand-lead line, which is generally twenty fathoms in length, is marked at every two or three fathoms, so that the depth of water may be ascertained either in the day or night. Sounding with the hand lead, called *heaving the lead* by seamen, is generally performed by a man who stands in the main-chains, to windward. Having the line all ready to run out without interruption, he holds it nearly at the distance of a fathom from the plummet, and having swung the latter backwards and forwards three or four times, in order to acquire the greater velocity, he swings it round his head, and thence as far forward as is necessary; so that, by the lead's sinking while the ship advances, the line may be almost perpendicular when it reaches the bottom. The deep-sea lead is marked with two knots at twenty fathoms, three at forty, four at fifty, and so on to the end. It is also marked with a single knot in the middle of each interval, as at twenty-five, thirty-five, forty-five fathoms, &c. To use this lead more effectually at sea, or in deep water on the sea-coast, it is usual previously to bring to the ship, in order to retard her course; the lead is then thrown as far as possible from the ship on the line of her drift, so that, as it sinks, the ship drives more perpendicularly over it.—*In soundings* implies the being so near the land, that a deep-sea lead will attain the bottom, which is seldom practicable in the ocean.—*Soundings* is also a name given to the specimen of the ground: a piece of tallow, being stuck upon the base of the deep-sea lead, brings up distinguishing marks of the bottom, as sand, shells, ooze, &c., which adhere to it. The soundings, i. e. the depth of the water and the nature of the ground, are carefully marked in the log-book, as well to determine the distance of the place from the shore, as to correct the observations of former pilots.

SOUP; a kind of pottage, made of bread, broth, or the juice of flesh, with various other ingredients. —*Portable soup* is a kind of cake, formed of concentrated broth, which, being freed from all fat, and, by long boiling, having the most putrescent parts of the meat evaporated, is reduced to the consistence of glue, and will keep sound for many years. In long voyages, this has been found to be a most valuable article of food.

SOUR GUM. See *Tupelo*.

SOUTH, ROBERT, a celebrated divine of the church of England, the son of a London merchant, was born at Hackney, in 1633, and educated at Westminster school and Christ-church, Oxford. In 1654, he addressed a copy of Latin verses to Cromwell, on the conclusion of peace with the Dutch; and the following year produced a poem entitled *Musica Incantans*. In 1660, he was chosen public orator of the university of Oxford; and soon after was nominated domestic chaplain to lord Clarendon, then lord chancellor. In 1663, he became a prebendary of Westminster, was admitted D.D., and obtained a living in Wales. On the disgrace of his patron, he was made chaplain to the duke of York. In 1670, he was installed canon of Christ-church; and, in 1676, he went to Poland, as chaplain to the English ambassador, Lawrence Hyde. On his return home in 1678, he was presented to the rectory of Islip, in Oxfordshire. In the latter part of the seventeenth century, Doctor South commenced a controversy with Doctor Sherlock, relative to the doctrine of the Trinity. Both disputants professed to be orthodox sons of the church, their difference relating to the mode of explaining the doctrine in question. Doctor South died in 1716. He possessed an abundant share of wit and humour, which he not unfrequently displayed in his most serious compositions. His Sermons, which have been much admired, were published in 11 vols., 8vo. He also wrote an account of his journey to Poland, and other works.

SOUTH AMERICA; the southern half of the new world, forms a triangle, extending from lat. 12° N. to 52° 30′, or, including the archipelago of Terra del Fuego, to 55° 58′ S., and from 35° to 80° W. lon. It is connected by the isthmus of Panama with North America. Its extreme length from the gulf of Maracaybo to the straits of Magellan is 4600 miles; its greatest breadth from cape St Roque to cape Blanco, in lat. 4° S., 3500; superficial area, about 7,400,000 square miles. (See

America.) The surface rises gradually from the shores of the Atlantic ocean to the summit of the great mountain chain, which extends along the western coast, no where more than 80 miles from the Pacific ocean. This chain, called the Andes or Cordilleras (see the articles), stretches north and south through South America from capes Froward and Pilares, on the straits of Magellan, to the isthmus of Panama, where it sinks somewhat. It is volcanic almost throughout; in many parts there are volcanoes in activity. The lofty valley of Quito is often desolated by earthquakes. On the Pichincha, Humboldt counted eighteen shocks in less than thirty minutes. To the south, towards the Rio de la Plata, are extensive plains covered with saltpetre and salt, in which the springs and rivers are also saline. From the gulf of Arica, on the western coast, to cape St Roque, runs the mountain chain Chiquitos, separating the basins of the Amazons and of the Plata. At the foot of this ridge lie two immense plains, the pampas of the Plata (see *Pampas*), and the plains of the Amazons, the former covered with grass, the latter with wood. To the north is the detached chain of Guyana, in the western part of which, called the Mei, the Orinoco rises; the eastern part of the chain is called Tamucaraque. Still further north, on the coast of the Caribbean sea, is the chain of Caracas, or the sierra of Santa Martha, in which is the Silla, 8500 feet high. This chain bounds the great basin of the Orinoco, 1,000,000 square miles in extent. To complete the view of the natural divisions of South America, it is necessary to distinguish the valleys of the three great rivers, which drain nearly the whole continent, and are striking features in its geography. The Orinoco, the Amazons and the Plata have been described in separate articles. Besides these, the principal rivers are San Francesco in Brazil, the Colorado in Buenos Ayres, and the Magdalena in Columbia, flowing north into the Caribbean sea. The vicinity of the Andes to the western coast renders the streams which flow into the Pacific, little more than mountain torrents. The lakes are neither so numerous nor extensive as those of North America. Maracaybo in the north, Titicaca in the west, and Patos in the south-east, are the most considerable. In the great plains, temporary lakes are formed during the rainy season, by the overflowing of the rivers, which have sometimes been marked on the maps. The elevated plains or plateaus of South America are inferior in extent to those of the northern division of the continent, not exceeding 100 miles in circuit; but they are higher (from 8500 to 9000 feet), and are separated by deeper valleys. The lowest plain, however, the Llanos, extends over a space of 250,000 square miles, from the mountains of Caracas to the forests of Guyana, and to the delta of the Orinoco. In some parts, it is covered with woods, standing under water; in others, it is destitute of trees and fountains, or bears a few scattered palms. In the dry season, the parched grass falls to powder, the ground cracks, and whirlwinds raise clouds of dust, which resemble the waterspouts of the ocean. Even the alligator and the boa lie immovable in the dried clay, till they are revived by the first rains. Then the plain is suddenly covered with a rich carpet of grass. The climate of South America is colder throughout than in other regions under the same latitude. Even under the line, the heat is not excessive, owing to the height of the surface and the narrowness of the continent in this part. Many of the summits in the torrid zone are covered with perpetual snow. Humboldt fixes the snow-line under the equator at 15,000 feet. (See *Snow-Line.*) On the cordilleras of Grenada and Peru, it rains almost the whole year; on their coasts, it never rains nor thunders at all. In other parts, the heat is tempered by the great marshy lowlands, or by frequent rains. In some of the countries on the Amazons, it rains during ten months of the year. Guyana is thus rendered extremely unhealthy. In Patagonia, the air is raw, the skies are rarely clear, and the coasts are covered with almost perpetual fogs, and subject to violent storms. In Terra del Fuego, the valleys on the northern side are in the vicinity of high, bare mountains, covered with snow in midsummer. The peculiarities of the soil and climate, of course, have an effect upon the natural productions. The wonders of the tropical vegetation are exhibited in the great work of Bonpland and Humboldt—*Nova Genera et Species Plantarum, quas in Peregrinatione ad Plagam æquinoctialem Orbis Novi collegerunt* (fol., Paris, 1816). The potato (*solanum tuberosum*) is a native of the Andes, and, according to Pavon (*Flora Peruviana*), grows wild around Lima, in Chile, and in other places. The natives cultivate it, and call it *papas*. There are fourteen species of the cinchona or quinquina known. (See *Bark, Peruvian.*) Great quantities of the bark are collected between lat. 2° and 6° south. Cacao, vanilla and maize are also native plants, and the soil yields a great number of medicinal plants and dye-stuffs, and resinous trees Particularly remarkable are the aracatscha, from the root of which a farinaceous substance of an agreeable flavour is obtained, and the wax palm, which grows to the height of 160—180 feet. In America alone there are 87 species of palms known, which are equally distinguished for their beauty and size, and for their various uses, furnishing wine, oil, wax, flour, sugar and salt. Of the *orchideæ*, the chief ornament of the tropical vegetation, 244 species are counted in America. Around the cataracts of Tequendama, formed near Santa Fé by the Bogotá, nature appears to have scattered various species of unknown plants and strange animals, as from her horn of plenty. The forests are so thickly filled with bushes, trees and plants, as to be impenetrable except in some places where the wild beasts have made a path to the water. Chile abounds in medicinal plants, frankincense, the cocoa-palms, &c. In the Brazilian forests there are more than eighty species of wood useful for carpentry or dyeing. In the low lands of the Orinoco, and on the coasts, the valuable guaiacum and caoutchouc exude from the trees. The plantations in Guyana yield all the productions of the West Indies without manure or ploughing. Cayenne produces spices, and Brazil, matte, or tea. In the animal kingdom, the lama, the guanaco and the vicugna, of the sheep kind, and the tapir and the peccary of the hog kind, are peculiar to the countries on the Andes. The American tiger, or jaguar and the puma, are the principal beasts of prey. The alligator or cayman, attains to a length of fifteen feet and more. The birds are not numerous in the higher parts of the country, but of great variety of colours and size, from the colibri to the condor. The low lands abound in birds and fishes. The whale fishery on the coasts of Brazil is important, and the manati, or sea-cows, are numerous in the rivers of Guyana. The alco, or wild dog, and the tuyu, or American ostrich, which inhabits the pampas, the electric eel, and the penguin, are also found in this part of the continent. In the great grassy plains between the arms of the Plata and the Madeira, roam numberless herds of wild horses and cattle, sprung from those brought to the country by Europeans. In the Brazilian province of Rio Grande and on the Plata, the latter are so numerous that they are killed merely for their hides. In the high lands are found some of the most venomous and dangerous of the serpent tribe; for example, the rattlesnake, the enormous boa, &c. Centipedes, scorpions, frogs (for instance, the rana pipa of the Orinoco) and lizards are also found. In Guyana, the air is filled with butterflies of the most various colours. The lantern flies light the traveller by night with their shining heads. The mineral kingdom abounds in the most precious productions. In Brazil, diamonds are found of the largest size and in the greatest number; but they are inferior to the Oriental diamonds. (See *Diamond*, and *Diamond District*.) In some parts of Brazil, there are gold mines; but the greatest quantity of gold is obtained from the sands of rivers. Other minerals, as iron, tin, lead, quicksilver, salt, &c., although abundant, are little sought after. Gold mines are found in Grenada and Peru; platina is found in the mines of Choco and Barbacoas; silver is plentiful only in the colder Peruvian provinces, and the silver mines of Potosi are less productive than formerly. (See *Mine*.) In Chile, there is scarcely a mountain without gold, or a river without golden sands. Copper and tin are exported. South America, formerly almost entirely in the possession of two effete monarchies of Europe, is now, with the exception of Guyana, entirely independent of European rulers. It is divided into the empire of Brazil, the republics of Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Buenos Ayres, or the United Provinces of La Plata, and the Banda Oriental, or Uraguay; Guyana, Paraguay, or the dominions of Francia, and Patagonia, with the Terra del Fuego, in possession of the native tribes. The whole population is estimated at between thirteen and fourteen millions. The history and geographical details of each of these divisions will be found under the separate heads. (See, also, *America*, *Columbus*, *Americus*, *Cabot*, *Pizarro*, &c., for the earlier history; *Bolivar*, *Francia*, *Pedro I.*, *San Martin*, *Sucre*, *Santander*, *Paez*, &c., for more recent events; for the commerce of South America, see the article *Commerce of the World*, and the articles on the separate countries.) The population of South America is composed of whites, Indians, and Negroes, and of various mixed races descended from two or all three of the pure varieties. The whites are mostly Creoles, or native born descendants of Europeans, the number of the latter being very small. The native tribes are, in some parts of the country, still entirely independent, and, in others, have long been subdued, and converted to the Catholic religion. (See *Indians, American*.) The Negroes are Africans, or of African descent, and are not very numerous. Slavery has been abolished in the South American republics. Mestizoes form a large class of the population. Peace and order, which can only be secured by the stability of the governments and the intelligence of the people, are yet wanting to render the possession of liberty a blessing to those new states, and to heal the wounds which the bad policy of the parent states, civil wars, and domestic factions, have inflicted on that part of the American continent.

SOUTH AMERICAN REVOLUTIONS. See the articles on the different countries of South America.

SOUTH CAROLINA. See *Carolina*.

SOUTH POLAR ISLANDS. Cook sailed south as far as lat. 60° S. (See *Sandwich Land*.) In 1819, the Russian captain Bellinghausen advanced to 70°, and, several years later, captain Weddel reached the parallel of 74° 15′: and the whale and seal fishery is carried on in the Antarctic ocean from the United States. Still the south pole has not been approached so nearly as the north pole, nor have these waters been carefully examined. It was for a long time supposed that there was a great southern continent; but later voyages render it probable, that the Southern ocean does not contain any great masses of land. The islands which have been visited here are, New or South Georgia (lon. 37° W.; lat. 54° 30′ S.), inaccessible during a great part of the year, on account of the ice; it was discovered by La Roche, in 1675: Sandwich Land, visited by captain Bellinghausen, in 1819; he found it to consist of small islands surrounded with icebergs, and enveloped in fog: New South Shetland, discovered in 1819 by captain Williams (lat. 61°—63° S.; lon. 71°—81° W.); the captain explored the coast for 200 miles, went on shore, and found the island covered with snow, and uninhabited; the coast abounded with whales and seals: Alexander and Peter's island (lat 69½° S.), discovered by Bellinghausen, in 1821; it is the most southern land yet discovered; the Austral or Southern Orkneys, discovered by captain Weddel, in 1822 (lat. 60° 45′ S.; lon. 50° W.), and described as a mass of naked rocks. See Weddel's *Voyage towards the South Pole* (1825).

SOUTH SEA. See *Pacific Ocean*.

SOUTH SEA ISLANDS. See *Australia*.

SOUTH WALES, NEW. See *New South Wales*.

SOUTHAMPTON; an ancient borough and sea-port of England, the capital of Southamptonshire, or *Hampshire* (q. v.), is situated seventy-four miles from London, on a pleasant peninsula, which gently slopes down to the north-eastern shore of the Southampton Water, which at the entrance is about two miles broad, and extends to the north-west for seven miles. The town consists of one principal street, which, in elegance and spaciousness, resembles the High Street of Oxford; and many smaller ones branch from it. It was anciently enclosed by a wall, with round towers at intervals, remains of which are at present visible. When thus defended, it appears to have been about a mile and a quarter, but it is now full three miles in circumference. Many new streets and handsome buildings have recently been erected, the chief of which are the guildhall, sessions-hall, audit-house, prisons, &c. The town is well paved and lighted with gas, and the inhabitants are supplied with water from several springs in the vicinity, conveyed to the houses by means of pipes. The chief sources of amusement for the inhabitants and visitors are a theatre, assembly rooms, and races held annually in the autumn on Southampton Common. An annual regatta also takes place for subscription prizes. There are a literary society, a botanical society, and several subscription libraries. Here is a military asylum for the orphan children of soldiers, being a branch of the Chelsea institution. It was first established in 1816, under the auspices of the Duke of York. The advantages of situation, and the attractions of this part of a fine and highly picturesque county have been the means of making Southampton a place of fashionable resort during the bathing season. Baths are here provided for the recreation of the healthy and the benefit of the invalid visitors. A considerable trade is carried on in this port with Russia, Portugal, Sweden, and different parts of the Baltic, and with Guernsey, Jersey, &c. The chief articles of import are wines, fruits, iron, hemp, pitch, tar, and timber. There is also a trade with Newcastle for coals, and with Wales for iron and slates. Wool shipped from any other port to the islands of Guernsey and Jersey, must be relanded here or pay the duty at the custom-house, according to an act passed in the reign of Edward III. The first indications of the progress of Southampton, as a commercial town, are mentioned in history during the reign of Henry III. at which period the Lord Mayor of London was appointed to receive the customs of the port. The harbour, which is spacious, affords accommodation for ships at all times to ride at anchor in perfect security. During the busy season of the year at Southampton, steam-packets are constantly communicating with Havre, Guernsey, Jersey, the Isle of Wight, Portsmouth, and other places; and common sailing vessels are leaving daily for destinations in all parts of the country. Population in 1831, 19,324; in 1841, 27,744.

SOUTHAMPTONSHIRE. See *Hampshire*.

SOUTHERN LIGHTS, OR AURORA AUSTRALIS. See *Aurora Borealis*.

SOUTHCOTT, JOHANNA; a singular fanatic, whose extravagant pretensions attracted a numerous band of converts in London and its vicinity, said to have, at one period, amounted to upwards of a hundred thousand. She was born in the west of England, about the year 1750, of parents in very humble life, and, being carried away by a heated imagination, gave herself out as the woman spoken of in the book of Revelations. In this capacity, although in the highest degree illiterate, she scribbled much unintelligible nonsense, and for a while, carried on a lucrative trade in the sale of seals, which were, under certain conditions, to secure the salvation of the purchasers. A disorder subsequently giving her the outward appearance of pregnancy, after she had passed her grand climacteric, she announced herself as the mother of the promised Shiloh, whose speedy advent she predicted. The faith of her followers, among whom were several clergymen of the established church, rose to enthusiasm. A cradle of the most expensive materials, and highly decorated, was prepared by her expectant votaries at a fashionable upholsterer's, and every preparation made for the reception of the miraculous babe that superstition and credulity could induce. About the close of the year 1814, however, the prophetess began to have her misgivings during some comparatively lucid intervals, in which she declared, that "if she was deceived, she had, at all events, been the sport of some spirit, either good or evil," and, Dec. 27 in that year, death put an end to both her hopes and fears. With her followers, however, it was otherwise; and though for a time confounded by her decease, which they could scarcely believe to be real, her speedy resurrection was confidently anticipated. In this persuasion many lived and died; nor is her sect yet extinct; but, within a short period, several families of her disciples were living together in the neighbourhood of Chatham, in Kent, remarkable for the length of their beards, and the general singularity of their appearance. The body of Johanna underwent an anatomical investigation after her death, when the extraordinary appearance of her shape was accounted for upon medical principles, and her remains were conveyed for interment, under a fictitious name, to the burying ground attached to the chapel in St John's Wood.

SOUTHERN, THOMAS, a dramatic poet, was born at Dublin, in 1660, and educated there at Trinity College. In 1678, he went to London with the view of making the law his profession, and entered himself of the Middle Temple, but soon abandoned the study, and dedicated his time to the cultivation of his muse. His first dramatic effort was a tragedy entitled the Persian Prince, or the Loyal brother, founded on the story of Shah Thamas. It was first performed in 1682, and, besides raising the author's reputation, procured him the favour of the duke of York, to whom he had paid his court in it. On the accession of James to the throne, Southern went into the army, and rose to the command of a company, in which he served during Monmouth's rebellion. Another of his tragedies, the Spartan Dame, written in 1687, was acted in 1721. From this period he continued to produce occasionally comedies as well as tragedies; in the former style of composition, however, he was far from being successful; but two of his tragedies yet keep possession of the stage. These are his Oronooko, founded, it is said, on a true story, which forms the ground work of one of Mrs Behn's novels; and Innocent Adultery, which, under its modern name, Isabella, or the Fatal Marriage, is one of the most pathetic dramas in the language. The latter part of his days was passed in ease and affluence. His death took place in 1746, when he had attained the advanced age of eighty-six. His works have gone through several editions.

SOUTHWARK. See *London*.

SOUZA BOTELHO, JOSEPH MARIA, baron de, a Portuguese nobleman, distinguished as a diplomatist and man of letters, born at Oporto, in 1758, studied at Coimbra, entered the army, and served from 1778 to 1791. He was successively Portuguese ambassador at Stockholm, Copenhagen, and Paris, till 1805, and spent the rest of his days in literary retirement. His leisure was devoted to the preparation of an edition of the Lusiad of Camoens, with a memoir. This magnificent work, printed by Didot at Paris, in folio, with engravings by Gerard, appeared in 1817. In 1824, he published a translation, in his native language, of the *Lettres Portugaises*, with the French on the opposite pages, and prefatory observations. His death took place in 1825. After the death of his first wife, he married, at Paris, in 1802, the countess de Flahault, widow of the count de Flahault, guillotined in 1792. This lady is well known in the literary world as the authoress of *Emilie et Alphonse; Adèle de Sénanges; Charles et Marie;* and other popular works of fiction.

SOVEREIGN, in politics; a word of various meanings. In the widest sense, it denotes that political person, or body of persons, from whom all legal power is considered to emanate. Thus, where the monarch is regarded as the original fountain of all legal power, he is called the sovereign: in an aristocracy, such as that of Venice was, the body of the nobles is the sovereign; and in a democratic republic, like that of the United States of America, the people themselves, as the source of power, are the sovereign. The historical origin of sovereignty is viewed by some as of great importance; others think it of little moment. The inquiries of the first class have led them to diverse results. Some of them say that the power which the divine law confers on the father over his family, gradually gave rise to chief priests and monarchs. They acknowledged no true sovereignty but that vested in a monarch. Others derive sovereignty from the right of the strongest. The husband has a right, they say, to exercise authority over his wife, because he has the power to do so; and the authority of the monarch rests on the same foundation. Strangely enough, this very theory, which, in fact, justifies all kinds of revolutions, and is the principle whence spring the violences which continually convulse the despotisms of Asia (see the beginning of the article *Slavery*), has been preached of late, with great zeal, by many of the apostles of divine right and absolutism. Others, again, have traced the origin of sovereignty to the social compact, representing a number of men as uniting to form a state, and as delegating certain powers to certain individuals or bodies of men, either expressly or tacitly (in the latter case, the delegation being proved by the resumption of the delegated power at the pleasure of the majority). The advocates of this opinion rely upon the fact, that in many instances we have such contracts actually made in the case of civilized nations, as well as of tribes in their infancy, who easily remove a chief if he is disagreeable to the majority; and where no contract is found recorded, they say that the monarch's power rests on the consent of the people, because they find the power to remove him if they choose; and we often find him, in fact, driven from his throne by a revolution of his subjects. The doctrine of divine right, they contend, is quite unnecessary to account for a people's submission to a particular man, because there are abundance of other causes to account for the fact of a people or an army supporting one man in authority rather than another.

Others, we have said, consider the historical origin of sovereignty of little importance in determining the true source of sovereign power. Its principles, they say, can be well settled without ascertaining this point, just as we can settle the true principles of language, music, architecture, the useful arts, &c., although we may be unable to trace out their origin. The great question is not, How did governments originate? but, What is the principle which lies at the basis of them all, and becomes more distinctly developed with the progress of political society? The principle which supports the organization of a tree remains the same whether it be raised from a seed or a cutting; and the inquirer would learn but little of its nature from determining to which of these its origin is to be referred. If we investigate the nature of man and of governments, we cannot but see that the fundamental principle of all the latter is the sovereignty resting in the collective body of the individuals comprising a political society, often disguised in various ways, sometimes to the benefit, sometimes to the disadvantage, of the people. This theory has rapidly gained ground of late, and, in fact, was, to a great degree, always acted upon in Europe until the last century, when the monarchs of the continent strove to establish systematic despotisms. Never would so much have been said about the sovereignty of the people, had not the monarchs and the supporters of absolute governments started such absurd theories respecting the nature of sovereignty. What we have said refers immediately to the internal organization of states. The external sovereignty, i. e. the entire independence of one government upon others, and the acknowledgment of this independence by other governments, are intimately connected with its internal constitution. A sovereign state, therefore, may adopt whatever laws it pleases for the regulation of its domestic concerns, and, as to its external relations, is not bound to acknowledge any superior. It may, therefore, appeal to arms or to arbitration, if differences arise between it and another state. The princes of the German empire (while that empire existed) were called *états mi-souverains*, because they stood, in certain respects, under the emperor, and were not entirely free in their foreign relations. The states forming the confederacy of the United States, call themselves sovereign; but they are not so in the sense in which this word has always been taken, because they have given up to the general government many of the rights of sovereignty; i. e. such as can be exercised only by the supreme power of the state, or in the name of the whole state. The rights of sovereignty embrace the power of making laws and of providing for the administration of justice, even by capital punishments; the power of making war and peace, and of conducting the foreign relations of the country; of raising and supporting armies, levying taxes, of coining money, &c. The various states of the Union have ceded the following powers to congress —the power to declare war, maintain armies and navies, and make peace; to regulate all foreign relations; to raise taxes; to coin money, and provide for matters connected with it; jurisdiction in certain cases (see *Courts*), and the power of legislation necessary for carrying into execution the delegated powers. See also *Constitution.*

Sovereign also means, in a narrower sense, the monarch, even if he is acknowledged to share his power with other branches, as in England, where the king by no means unites in himself the whole sovereign power. See *Political Institutions*, *Estates*, and *Legitimacy*.

SOVEREIGN; an English coin. See *Coins*.

SOY; a dark-coloured sauce, prepared by the Chinese from the seeds of a sort of bean (*dolichos soja*). The plant has an upright and hairy stem, erect bunches of flowers, and pendulous, bristly pods, each containing about two seeds. The common story that soy is made from cockroaches or beetles, has probably originated from the form and colour of these seeds. The process of preparing soy consists in boiling the seeds until they become soft, and mixing with them an equal weight of wheat or barley meal, coarsely ground. This mixture is fermented, and, a certain proportion of salt and water being added, the whole is allowed to stand for two or three months, care being taken to stir it daily: at the end of this time it is ready for use. The seeds are, besides, employed in China and Japan as food: they are made into a kind of jelly or curd, which is esteemed very nutritious, and is rendered palatable by seasoning of different kinds. In Japan, they are put into soups, and are the most common dish of the country, being frequently eaten three times a day. Soy is chiefly imported from China and Japan, and that from the latter country is the most highly esteemed. The quantity annually sold in England, at the East India company's sales, is from 800 to 2000 gallons.

SPA, OR SPAA; a celebrated watering-place in the Belgian province of Liege, situated in a romantic valley, surrounded by heights covered with woods, about seven leagues from Aix-la-Chapelle; population, 3100. Spa has been long famous for its medicinal springs, which are mentioned by Pliny, and are six or seven in number. The principal ones are Pouhon, Geronstère, Sauvenière, and Tonnelet. The waters are all chalybeate, and those of Pouhon, being the most strongly impregnated, are bottled for exportation. (See *Mineral Waters.*) Their effect is diuretic and exhilarating; useful in cases of relaxation, obstructions of the liver, &c. They are visited in the warm season, lasting about four months. The company is composed, in a great measure, of men of rank from Germany, France, Russia, Netherlands, and England. Spa is provided with various amusements, and has good accommodations. The new Vauxhall is one of the finest buildings of the kind on the continent. The town, on account of its being resorted to from various parts of Europe, has been allowed neutrality during the hottest wars. The promenades are the four o'clock walk (*la prairie de quatre heures*), and the seven o'clock walk (*la prairie de sept heures*), so called from the hours at which they are respectively visited. The inhabitants manufacture various little ornamental articles of varnished wood, as boxes, &c., called Spa work (*ouvrage de Spaa*).

SPAGNOLETTO, a celebrated painter, whose true name was Joseph Ribera, or Ribeira, was born at Xativa, in Valencia, in 1588, but educated at Naples, and probably takes the name by which he is usually known from the country of his birth. He was at first a pupil of Caravaggio, but afterwards improved himself by the study of the works of Raphael and Correggio, at Rome and Parma. After his return to Naples, he was appointed court painter to the viceroy, the duke of Ossuna, and overseer of all the royal works, in which post he conducted himself with great haughtiness towards the artists, and is said to have shown a particular jealousy of Domenichino. It has been said that Ribeira concealed himself, out of chagrin, occasioned by an amour of don John of Austria, natural son of Philip IV., with one of his daughters, and that nothing more was heard of him; but, according to Bermudez, he died, in good circumstances, at Naples, in 1656. Ribeira excelled in the representation of terrible scenes, such, for example, as the flaying of St Bartholomew. He executed such subjects with a minute accuracy that excites horror, and was very skilful in delineating the separate parts of the body—hair, wrinkles, skin, &c. There are works of his in Naples, Paris, Vienna, and Dresden.

SPAGNUOLO. See *Crespi.*

SPAHIS, OR SIPAHIS; a part of the Turkish cavalry, which is said to have been organized by Amurath I., the founder of the janizaries. (See *Janizaries.*) Their number is estimated at 20,000 men. They are paid by the sultan. The lowest rate of pay is twelve aspers per day; but those who have performed especial services, or have the advantage of favour, receive higher pay. When the sultan takes the field in person, each spahi receives a present of money: and the janizaries enjoyed the same privilege. The spahis are composed of two classes: the *spdhaoglari*, who have red, and the *silhatari*, who have yellow banners. The latter, who pretend to have been instituted by Ali, the pupil of Mohammed, were formerly the most important; but the former have now become superior. The usual arms of the spahis are a sabre, a lance, a jereed (a dart about two feet long, which they hurl with great strength and skill), and a second sabre, or rather broad-sword, attached to the saddle. Some of them have bows and arrows, and also pistols and carbines: but they make little use of fire-arms. In war, the spahis form a tumultuous mob, without discipline or organization. Their first charge is formidable; but if they are unable to make an impression on the enemy's line after three attempts, they flee in confusion.

SPAIN (*Espana*). The physical features of the Spanish peninsula have exercised a most important influence on the character and history of its inhabitants. The whole surface of the peninsula comprises 225,600 square miles, of which 187,110 belong to Spain, and the rest to Pórtugal and the republic of Andorra (110 square miles). It is separated from France and the rest of Europe by the Pyrenean chain of mountains, and is surrounded by three seas, the Mediterranean, the Atlantic, and the bay of Biscay. Spain lies between lat. 36° and 43° 47′ N., and between lon. 9° 13′ W. and 3° 15′ E., and is the sixth in extent of territory among the European powers. The bay of Biscay gives great facilities for northern commerce; the gulfs of Alicant and Rosas offer secure harbours and roads to the merchants of Italy, the Levant, and Northern Africa, whilst the bays of Corunna and Cadiz open to her mariners the path to the Indies. One hundred passages lead over the Pyrenees to France; but only three of these are passable for carriages. (See *Pyrenees.*) From this frontier ridge rise the Cantabrian mountains, which traverse Asturia and Galicia, and terminate at cape Finisterre. To the south-east extends the Sierra d'Occa, five ridges of which, running nearly east and west, separate the basins of the Minho, Douro, Tagus, Guadiana, and Guadalquivir; and two others, to the south-west, form the southern point of Spain, the island Tarifa. The valleys of the Xucar and the Ebro have a southerly direction. These sierras, among which the Somo Sierra, the Guadarrama, the Sierra Morena, the Alpuxarras, the Sierra Nevada, and the Sierra de Ronda, are the principal, surround the plains of Castile and La Mancha (the highest of such extent in Europe) with strong bulwarks, and even constitute distinct moral divisions of the inhabitants. The whole country thus appears to be formed of several great intrenched camps, and is admirably adapted for a war of posts, and particularly for guerilla warfare. Although Spain contains 150 considerable streams, very few of which, however, are navigable, there is a deficiency of water. Except the Albufera, in Valencia, there is no lake of much extent; and there are no marshes except in the valley of the Guadiana. The marshy islands in the Guadalquivir have been drained and planted since 1819. The dry and pure mountain air renders the inhabitants vigorous and healthy: the sea breezes have the same effect upon the coasts; but in the southern parts the scorching solano, from the shores of Africa, is felt during some seasons. Snow lies upon the summits of some of the mountains till July; and the capital is situated in a region fifteen times more elevated than the site of Paris. The fertile soil, wherever it is well watered, produces abundance of plants with little cultivation. The finest wines are exported in great quantities (Alicant, Sherry, Malaga), and other kinds are consumed at home. Since the expulsion of the Moors, agriculture has been in a low state, in spite of the patriotic exertions of numerous societies; hardly two thirds of the productive soil is under cultivation. Wheat, in Valencia, yields from twenty to forty fold. The Andalusian wheat commands a higher price in the Spanish market than the northern. Among the principal productions are olives, saffron, anise, cumin, cork, esparto or Spanish broom, soda, &c. In the warmer parts of the country, the sugar-cane and the banana thrive; and even the heaths, or *landas*, are covered with fragrant herbs and shrubs. But neither the wood (except in the maritime districts), which is sold by weight in Madrid, nor the corn (with the exception of barley), is produced in sufficient quantity to supply the wants of the inhabitants. The breeding of Merinoes is profitable for the *mesta* (a society composed of owners of the flocks), but is injurious to agriculture. The whole number of migrating sheep is about ten millions; that of the stationary flocks, about eight millions. Valencia produces much silk: Andalusia breeds excellent horses; but the Andalusian studs have lost their importance. The mules are also of excellent quality. The gold mines of Spain have long ceased to be worked; but iron, copper, tin, and lead, are obtained. Silver mines are worked on the Sierra Morena, and the quicksilver mines of Almaden, in La Mancha, are rich, but do not yield enough for the mining operations of America. Sea and mineral salt are abundant, and there are mineral springs at Salcedon and other places.

The Spanish people are descended from Iberian Celts, mixed with Carthaginian and Roman colonists, with a strong infusion, at later periods, of Teutonic (Gothic) and Moorish blood. The population of Spain was estimated by Minano, in 1826, at about 13,900,000; and that of the Spanish colonies at 4,088,000, making the total population of the monarchy 17,988,000. The kingdom is politically divided into fourteen principal parts, each of which has its separate authorities and administration, and several of which are subdivided into smaller provinces, forming, in all, forty-one provinces. The division into fifty-one provinces by the cortes, in 1822, was abolished on the restoration of absolute power. The general divisions are as follows: 1. the kingdom of Navarre; 2. the Vascongades, or Biscay; 3. the principality of the Asturias; 4. the kingdom of Galicia; 5. the kingdom of Arragon; 6. the principality of Catalonia; 7. the kingdom of Leon: 8. Old Castile; 9. Estremadura; 10. New Castile; 11. the kingdom of Valencia; 12. Andalusia (including the kingdoms of Cordova, Seville, and Grenada); 13. the kingdom of Murcia; 14. the Balearic isles. The Spaniard is in general temperate, persevering, reserved, honest, and pious. The Spanish gravity is more observable in the higher than in the lower classes, or among women. The Spaniard of the lower order has more gayety, wit, vivacity, and, though frugal, is so indifferent to outward goods, that, were he less courteous and good-humoured, he might pass for a practical philosopher of the school of Diogenes. His pride of birth, rank and faith appears, however, on every occasion; and he is suspicious, irritable and vindictive. This pride also manifests itself in the contempt with which the northern Spaniard, the inhabitant of Biscay or the Asturias, looks down upon the native of the south, whose darker complexion and smaller frame betray his Moorish blood. The nobles are distinguished into the *titulados*, grandees who have the right to cover themselves in presence of the king (in 1787, their number was 129), marquises, counts, and viscounts (in 1787, their number was 535); and the lower nobility, *cavalleros*, *escuderos*, and *hidalgos*, the number of whom, in 1797, was 484,131. Music, singing and dancing are national amusements The two former are simple, often monotonous, but full of feeling; the latter is extremely voluptuous. The *bolero* is popular on the stage: the *fandango* and *seguidilla* are favourite dances in the open air, and in the family; the latter is danced by four couple, to the music of the cithern, which the player accompanies with his voice. Athletic sports, as the *barra* (throwing an iron bar at a mark) and balloon (a game at ball) are common. The favourite popular amusement is the bull-fights, which was prohibited in 1805, but was revived by Ferdinand VII. The Spaniard, in general, is of the middle size, and well built, with an expressive countenance, brilliant eyes, white teeth and black hair. The men of the higher classes are much less robust than those of the lower. The Spanish women are distinguished for beauty of person and dignity of manner. Their complexion is neither white nor delicate, but healthy: they dress with taste, and move with ease and grace: they are unaffected, and have often, particularly among the lower classes, a ready vein of wit. In general, they are characterized by intelligence, deep feeling, fidelity and constancy; but they are almost entirely uneducated. Their courage and patriotism have often been displayed even in the field of battle. The strictness with which the female sex was formerly treated, and the formal stiffness which prevailed in society, have been much diminished; and the Oriental Moorish traits are gradually disappearing.

The most important element in Spanish society is religion: the ecclesiastics form the most privileged order, and every family endeavours to find a place in the church for some of its members. Religion, however, consists merely in the outward observances of the church, in the practice of penances, and in the reverence of priests and monks. The apostle James is the tutelary saint of the kingdom; but he has lost reputation, since Charles III., with the estates, in 1760, took an oath of their belief in the immaculate conception of the virgin Mary, who was declared the patroness of the Spanish monarchy. The invocation of the virgin is, therefore, the chief act of divine service; and there are saints for all orders and degrees, whose festivals occupy a great portion of the time. The clergy, particularly the inquisition, has hitherto usurped the direction of education and literature; and the Spanish church has thus obtained possession of the supreme power, although it has had the prudence to conceal its exercise of it. The most enlightened ecclesiastical college is that of the chapter of San Isidoro, which has been exposed to persecution on a charge of Jansenism. The edict of March 2d, 1819, divided the prohibited books into two classes: 1. books which are forbidden even to those who have received a license from the Holy Office for reading prohibited books in general; and 2. books which contain revolutionary principles, are directed against the inquisition, the clergy, true religion, the king and monarchical power, or which ridicule the sacrament of marriage, or jealous men. The importation of Spanish books, printed out of the country, is punished by four years' confinement to the galleys. (See *Inquisition.*) The number of the clergy, before the wars with France, was 256,000; in 1826, 146,696, among whom were sixty-one archbishops and bishops, 61,327 monks, and 31,400 nuns. According to an estimate of a member of the cortes, the income of the clergy and convents in Spain, in 1808, from their real estate alone, was 51,000,000 dollars; and, according to the statement of Arguelles, minister of finance in the time of the cortes, the property of the church exceeded, by one third, the domains of the state.

The inaction of the Spaniard arises less from indolence than from his frugality and fondness for religious festivals, the fertility of the soil, and the ease with which his few wants are supplied. The system of taxation—founded not upon the land, but upon production—and the privileges and monopolies of particular classes and societies, also contribute to discourage industry. The greatest activity prevails in the maritime towns and provinces, where industry is sure of its reward. The woollen manufactures are the most important; but they do not furnish more than one twentieth of the consumption. The best stuffs are made at Segovia and Guadalaxara. There are silk manufactures at Talavera, Madrid, Segovia, Toledo, Valencia, &c.; but less flourishing than in the fifteenth and sixteenth centuries. Iron and steel wares are exported from Biscay, blankets from Valencia, and fine handkerchiefs from Barcelona. The black Cordovan leather, from Cordova, is of excellent quality, The manufacture of hats at Valencia, Segovia, &c., and of sail-cloth, is on the increase. The glass and mirror works at San Ildefonso produce good articles, but at a high price. The porcelain of Madrid is much inferior to that of other countries. The principal tobacco works are in Seville. The esparto, or Spanish broom, is a peculiar product of Spain, and is spun and woven into forty different articles. The commerce has undergone an entire change since the loss of the American colonies, from which the mother country received 35,000,000 dollars yearly in gold and silver, and 20,000,000 dollars in cochineal, cacao, vanilla, sugar, tobacco, hides, cotton, vicugna wool, cinchona, dye-woods, ipecacuanha, sarsaparilla, &c. The commerce with the colonies was closed against all foreign nations, but, since they have become independent, is carried on by the North Americans, the British and Dutch. Internal commerce suffers from the heavy tolls, and the want of means of communication. Among the five canals, none of which are completed, the imperial canal, or the canal of Arragon, is the most important.

The form of government is monarchical. The king, who bears the title of *Catholic majesty*, is absolute in Castile, Arragon, and in the islands; but the three northern provinces of Biscay, Guipuzcoa, and Alava, have maintained their privileges; and they consented to pay the extraordinary taxes of 1816, only on condition of the confirmation of these privileges, and the removal of the troops stationed among them. The Cortes forms an important element in Spanish history. (See *Cortes.*) The crown is hereditary, in the male and (according to an act of Ferdinand VII.) in the female line. The crown-prince has the title of *prince of Asturias;* the other children of the king are called *infantes* and *infantas*. The king is grand master of the orders of the golden fleece, of St Jago (St James), of Calatrava, of Alcantara, of Montesa, and of Charles III. The order of Maria Louisa was founded in 1792, for sixty ladies of the high nobility. Ferdinand VII. ascended the throne in 1814, and died in 1834. His three first wives died without children; his fourth wife, Mary Christina, sister of Ferdinand, king of the Two Sicilies (born 1806, married 1829), bore him a daughter, who is queen of Spain, under the regency of her mother. The old Salic law of Spain is the ground upon which Don Carlos (brother of Ferdinand) contests the succession of Maria Isabella, his niece. The predecessors of Ferdinand have been, 1. of the Austrian dynasty: Philip I., husband of Joanna of Castile; Charles I. of Spain (V., as emperor of Germany); resigned the crown 1556; Philip II. (died 1598). Philip III. (1621); Philip IV. (1665); Charles II. (1700): 2. of the Anjou (Bourbon) dynasty; Philip V. (abdicated in 1724, but his successor, Louis, dying the same year, he resumed the crown, and died 1746); Ferdinand VI. (died 1759); Charles III. (1798); Charles IV. (resigned 1808.) Of the Bonaparte dynasty, Joseph (expelled 1813).

The colonial possessions of Spain are, in Asia, the Philippine islands and the Carolinas; in Africa, the *presidios* (towns on the coast) of Ceuta, &c., remnants of her former conquests in Northern Africa; the Canaries, and the three islands on the coast of Guinea, Annaboa, Fernando Po, and Prince's island: in America, Cuba and Porto Rico are the sole relics of the magnificent colonial empire of Spain.

The administration is conducted partly by five ministers, who have a seat and voice in the council, and partly by the provincial councils, of which the most distinguished, the council of Castile, existed as early as 1246. Justice is administered in the towns and villages by *alcaldes*, of whom there are five classes. The *alcaldes mayores*, or superior *alcaldes*, are also called *corregidores.* An appeal lies from them to the royal courts (*audiencias*), of which there are twelve at Valladolid, Grenada, &c., and to each of which is attached a chamber of criminal jurisdiction. The laws, the judiciary, and the legal process, all stand in need of a thorough reform. The public revenue is about 20,000,000 dollars; the expenditure is much greater, and the public debt is stated at nearly 800,000,000 dollars. In 1817, the conscription was introduced; at the close of 1827, the forces consisted of 91,000 men, including the militia, and of 350,000 royal volunteers. The naval force is composed of ten ships of the line, sixteen frigates, and thirty other vessels, with 14,000 men.

See, for the geographical and statistical accounts of Spain, the works of Bourgoing, Townsend, Laborde, Bory de St Vincent, and Minano's *Diccionario de Espana y Portugal.* The fourth edition of Laborde's *Itinéraire de l'Espagne* (5 vols., and an atlas) appeared in 1827.—For descriptions of the life, manners and character of the Spaniards, see Southey's *Letters written in Spain and Portugal;* Doblado's (Blanco White) *Letters from Spain; A Year in Spain*, by a young American; and Inglis's *Year in Spain* (London, 1831, 2 vols., 8vo.)

The *ancient history* of Spain embraces the period previous to the great irruption of the northern tribes into the Roman empire. As early as the third century before the Christian era, the two rivals, Rome and Carthage, contended for the possession of this important peninsula. The determined spirit of the people is shown by the resistance of Saguntum to Hannibal (B. C. 219), of Xativa (A. D. 1707) and Barcelona (A. D. 1714) to Philip V., and of Saragossa (1808 and 1809) to Napoleon. More than one Roman army found its grave in Spain. The

Lusitanian Viriathus, at the head of his countrymen, withstood the Roman power till he fell by assassination (B. C. 140). For fourteen years, the Romans attempted, without success, to subjugate the Numantines, till Scipio (B. C. 133) triumphed over the ashes of the city, whose inhabitants had destroyed themselves. Afterwards, this land, which is possessed of much natural strength, afforded refuge to several of the popular leaders of Rome, on their fall from power. Thus Sertorius, an adherent of Marius, lived in Lusitania (B. C. 72), and the sons of Pompey fought against Cæsar in Hispania Bætica, where Cneius fell. After a struggle of 200 years, when Agrippa, the general of Augustus, conquered the Cantabrians, Spain was first completely subjected to the Roman power. Augustus himself founded the colony of Cæsar Augusta (Saragossa) and Augusta Emerita (Merida). For 400 years, the Roman manners and language took root in the Spanish provinces, which, in Cæsar's time, had a population of 40,000,000. Merida supported a garrison of 90,000 men; Tarragona had 2,500,000 inhabitants. In the arts of war and peace, the peninsula rivalled Rome. Pomponius Mela, Seneca, Lucan, Trajan, and Theodosius the Great, were natives of Spain. The Celtic language continued only in Cantabria, and is still understood in Biscay, as William von Humboldt's investigations have shown. See his *Attempts to ascertain the original Inhabitants of Spain by Means of the Basque Language* (Berlin, 1821).

The *Middle Ages* of Spain include the times of the Goths and Arabians from the irruption of the barbarians into the Roman empire to the fall of Grenada, the last Moorish kingdom in Spain (1492.) At the commencement of the fifth century, the Vandals, Suevi and Alans spread themselves over the peninsula. About 419, the brave Wallia founded the kingdom of the Visigoths in Spain. The Vandals, from whom Andalusia received its name, could not withstand him, and withdrew into Africa in 428. From 467 to 484 the great Euric extended the kingdom of the Visigoths by the expulsion of the Romans, and gave them their first written laws. At length Leowigild, in 585, overthrew the kingdom of the Suevi, in Galicia. Under his successor, Reccared I., the introduction of the Catholic faith, in 586, gave the corrupt Latin language the predominance over the Gothic; and, after that time, the unity of the Spanish nation was maintained by the Catholic religion and the political influence of the clergy. But, after 125 years, Alaric's family, from revenge at being passed by in the choice of a king, recalled the Arabians, who had passed over into Africa. King Roderic fell in the seven days' battle against Tarik, at Xeres de la Frontera, in Andalusia, in 711. After that, the greatest part of Spain became a province of the caliphs of Bagdad. Forty years later, in 756, Abdorrhaman I., the last of the Ommiades, made himself master of Spain, overthrowing the government of the Abassides, and establishing a separate caliphate at Cordova; which, however, after 1038, fell to pieces, the different governors becoming independent, and assuming the title of kings. Thus Arabian princes reigned at Saragossa, Toledo, Valencia and Seville. In these places, the Moorish language and customs were almost universal. Yet the Christians were allowed the free exercise of their religion. The Arabians likewise permitted their new subjects (called *Mozarabians*, that is, spurious Arabians) to retain their language, laws and magistrates. At this time, the Jews spread over Spain. Meanwhile, the Visigoths, under their hero Pelayo and his successors, maintained their freedom in the mountains of Asturia and Galicia. The Moorish governments being weakened by changes of dynasties, and by internal dissensions, the Christian kings wrested from the Arabians one portion of the country after another, till, after the great victory, which the united Christian princes obtained over the Almohades, in 1220, at Tolosa, in Sierra Morena, there remained to the Arabians only the kingdom of Grenada, which was likewise obliged to acknowledge the Castilian supremacy in 1246, and was finally conquered by Ferdinand and Isabella in 1491. During the period of Arabian power, agriculture, commerce, the arts and sciences, flourished in Spain. The population was considerable. In Tarragona, there were 80,000 families, or 350,000 inhabitants. The rich city of Grenada contained 70,000 houses, 250,000 inhabitants, and 50,000 men able to bear arms. The Ommiades had connexions with the Byzantine emperors. The universities and libraries at Cordova and other places were resorted to by Christians, as the seat of the Greco-Arabic literature and the Aristotelian philosophy. From these institutions, Europe received the knowledge of the present arithmetical characters, of gunpowder, and of paper made from rags. Among the Gothic Spaniards, the blending of the chivalrous and religious spirit gave occasion to the foundation of several military orders. The great Cid or don Rodrigo Diaz de Vivar el Campeador, the hero without an equal, has been celebrated since the end of the eleventh century as the hero of his age. The romantic elevation of national feeling, which found its support in the religious faith and national church, preserved the Christian Gothic states Navarre, Arragon and Asturia, from many internal and external dangers. The county of Castile, at first called *Burgos*, became, in 1028, a separate kingdom. Ferdinand I., by his marriage in 1035, united with it Leon and Asturia. For him the great Cid conquered a part of Portugal. The kingdom of Navarre has existed since the ninth century. It formed a part of the Spanish territory of Charlemagne, south of the Pyrenees, obtained by conquest from the Arabians, and extending as far as the Ebro. Here, in the county of Barcelona, now the principality of Catalonia, powerful vassals ruled, till one of them, Raymond V., became, by marriage, king of Arragon, in 1135. His descendants in the male line reigned there 258 years. Alphonso VI. (died 1109), king of Leon, Castile and Galicia, together with Portugal, as far as Montego, conquered the Moorish kingdom of Toledo, or New Castile; but he gave up Portugal to his son-in-law Henry of Burgundy. Ferdinand III. did more: he conquered Cordova, Murcia, Jaen, Seville, Cadiz, and subjected Grenada to a feudal dependence on him. He became, in 1252, the true founder of the kingdom of Castile, by establishing the rule of indivisibility and primogeniture in the succession. Still the whole was as yet but an imperfect confederation. The privileges granted to the Jews in Spain, in the middle ages, had an injurious influence on the government and the public welfare. They were placed nearly on a level with the nobles; they were appointed ministers of finance, farmers of the public revenues, and stewards to the great: thus they obtained possession of all the money in the country, and, by their excessive usury, at length excited a universal outcry against them;

and, in 1492, they were banished for ever, to the number of 800,000, from Spain. The improvement of the country was much retarded by the defects in the public administration, particularly in regard to the taxes, by powerful vassals, bad kings, and family disputes: so that the third estate was not formed in Castile till 1325, 200 years later than that of Arragon, and with inferior privileges. Meanwhile, the Cortes, consisting of the estates of the kingdom, namely, the clergy, the high nobility, the orders of knights, and eighteen great cities, restricted the royal power, without, however, bringing about a state of legal order. But, in Arragon (a kingdom since 1035), of which Alphonso I., since the conquest of Saragossa, in 1115, had been in complete possession, the third estate was formed before the middle of the twelfth century, sooner than in any other European country, and a well-settled political order ensued. Disputes between the king and this estate, or of the members of this estate among themselves, were decided by a supreme judge, called *justitia*. (See Mariana, *Teoria de las Cortes*, Madrid, 1812.) From these circumstances, and the wisdom of the kings, the country flourished. Arragon comprehended, besides Catalonia and Cerdagne, already united to it, in 1135 the counties of Roussillon, Montpelier, the Baleares, or Majorca, from 1220 (where, however, from 1276 to 1344, a collateral line reigned), also Valencia, from 1238, Sicily from the Sicilian Vespers, in 1282, and Sardinia from 1326. But, by the provisions of James II., in 1319, the states of Arragon, Catalonia and Valencia only were indissolubly united each with its own constitution. At length the marriage of prince Ferdinand of Arragon (see *Ferdinand V. the Catholic*), with Isabella, heiress of Castile, in 1469, laid the foundation of the union of the crowns of Castile and Arragon. This followed on Ferdinand's accession to the throne in 1479.—See Murphy's splendid work upon the Arabian Antiquities of Spain (London, 1816); and the *Introduction to the History of the Mohammedan Empire in Spain;* and particularly Conde's *History of the Dominion of the Moors in Spain* (Spanish, Madrid, 1820), with the *History of the Visigoths*, by Joseph Aschbach (Frankfort on the Maine, 1827); and doctor E. A. Schmidt's *History of Arragon in the Middle Ages* (Leipsic, 1828; the two last in German).

With this union, with the entire subjugation of the Moors, and the discovery of America, a new period in the history of Spain begins. The young monarchy advanced immediately to the first place among the European governments; but, exhausted by political and spiritual oppression, it quickly declined in consequence, till the Spanish branch of the Hapsburg race became extinct in 1700. Spain now became a power of the second rank, under the kings of the house of Bourbon. These reigned without a cortes, and brought Spain into a close political connexion with France. At length they sunk before the power of Napoleon, and the revolt of Spanish America followed. The state of Spain since the restoration of the Bourbons will be treated in the sequel.

From 1479 *to* 1700. Spain had, when Ferdinand and Isabella founded the monarchy, a population of about 14,000,000; which, however, was much divided by difference of customs and laws. To unite the discordant parts into one powerful nation, was the great object which occupied for forty-three years Isabella Ferdinand, and cardinal Ximenes. By a severe administration of justice, and by the institution of the Hermandad, order was established through the country. The royal power was particularly strengthened and extended by the introduction of the inquisition, and by the union with the crown of the office of grand master of the three great military orders of Castile. Grenada was conquered in 1491, after a ten years' war. Soon after began the cruel persecution of the Jews and Moors, so injurious to Spain. They were obliged to be baptized, or to leave the country. Till then toleration had prevailed in Spain. Princes and nobles at one time even fought for the Albigenses; and, in the thirteenth century, the kings of Arragon braved the papal excommunication. But by this system of persecution the peace and prosperity of the country were deeply shaken. The discovery of America, in 1492, by Christopher Columbus, under the patronage of Isabella, withdrew much of the activity of the nation from the improvement of the mother country; and avarice, united with fanaticism, established in the West Indies an unwise colonial system. In general, the politics of Spain, under Ferdinand the Catholic, were characterized by cunning and desire of foreign aggrandizement, as appears from the acquisition of Naples, the league of Cambray, and the conquest of Navarre, south of the Pyrenees, though the warlike fame of the nation was maintained by one of the greatest commanders of his time, Gonsalvo Fernandez of Cordova, and by the expedition of the great Ximenes into the north of Africa. After Charles I. (as emperor of Germany, Charles V., son of the Infanta Joanna and Philip of Burgundy), had succeeded his father in the government of the Netherlands, his maternal grandfather (1516) in that of Spain, and his paternal grandfather in that of the Austrian dominions (1519); and after he had repressed, with the help of the nobles, insurrections in Valencia and Majorca, and particularly in Castile (1520), where the third estate demanded a freer constitution; and after he had annihilated the principal part of the liberties of the nation by the separation of the deliberative estates,—Spain became the first military and political power in Europe, during the four wars which Charles carried on with Francis I. of France, and by which he obtained Milan. The victory of the Spaniards at Pavia (February 24, 1525), which made Francis I. the prisoner of Charles, in Madrid, till the peace of Madrid (January 14, 1526), and the expedition of Charles into the north of Africa, extended the fame of the Spanish arms throughout Europe. The wealth which flowed in from Mexico, conquered by Cortez, in 1518, and from Peru and Chile, conquered by Pizarro and Almagro, in 1528, was not sufficient to supply the demands of the royal treasury; so that the revenues of the crown were exhausted, the taxes increased, and debts contracted. The thirty-five years' union of Germany with Spain promoted the intercourse between the two countries. But the strength of the powerful monarchy was exhausted by the forty-two years' tyranny of Philip II. Oppression and religious intolerance, war, and insurrections, occasioned the loss of the Netherlands, and depopulated the rest of the monarchy; and the conquest of Portugal, which remained united with Spain from 1581 to 1640, could not prevent its decay. England and Holland triumphed over the naval force of Spain, and destroyed her commerce; and Philip died in 1598, a bankrupt. Under his weak successors, Philip III. (died 1621), Philip IV. (died

1665), and Charles II. (died 1700), the abuses in the administration increased. An incurable wound was inflicted upon the country by the expulsion of 600,000 Moriscoes in 1609. On the whole, the persecutions of the Arabians cost Spain about 2,000,000 of souls, and the expulsion of the Jews about 800,000. The southern coasts, likewise, were depopulated by the continual incursions of the pirates of Northern Africa. Favourites, such as Lerma and the count Olivarez, wasted the resources of the kingdom. Olivarez wished to employ harsh measures; insurrections were excited; and Mazarin compelled Spain to acknowledge the superiority of France, in the peace of the Pyrenees (1659). By the peace of Aix-la-Chapelle, in 1668, by that of Nimeguen, in 1678, and by the *reunions* of Louis XIV., Spain lost many places in the Netherlands and Franche Comté. But after the death of Charles II. (1700), the monarchy sunk entirely from its ancient elevation, in consequence of the wars respecting the Spanish succession; and the population, which, in 1688, amounted to about 11,000,000, had diminished, in the first fourteen years of the eighteenth century, to about 8,000,000.

From 1700 *to* 1808. Charles II., the last Spanish sovereign of the race of Hapsburg, in his second will, made Philip of Anjou, a grandson of his sister, the consort of Louis XIV., and second son of the dauphin, sole heir of his dominions, in order to prevent the division of the Spanish monarchy, which had been resolved on in a treaty between England, Holland, and France. Louis XIV. acknowledged his grandson king, according to the testament. The emperor Leopold I., of the race of Hapsburg, laid claim to the throne, whilst William III., king of England and stadtholder of Holland, was in favour of a division of the monarchy, for the sake of preserving the balance of power in Europe. The measures of Louis XIV. at length brought on a war with England. Thus began the war of the Spanish succession (see *Eugene*, *Marlborough*, *Utrecht*, *Peace of*), in which the Bourbon, Philip V., after many changes of fortune, by the victories of Berwick and Vendome, maintained himself on the Spanish throne in opposition to Charles of Austria (afterwards the emperor Charles VI). But by the peace of Utrecht, in 1713, he was obliged to resign the Spanish dependencies in Europe—Naples, Sardinia, Parma, Milan, and the Netherlands to Austria, and Sicily to Savoy. England likewise retained Gibraltar and Minorca. Under the Bourbons, the nation lost its last constitutional rights; for Arragon, Catalonia, and Valencia were treated by Philip as conquered countries. The last diet held in Castile was in 1713, and in Saragossa in 1720. Biscay and Navarre alone retained some of their privileges. The ambition of cardinal Alberoni, in 1717 et seq., involved Europe for a short time in confusion. Spain, in 1735, again obtained possession of the Two Sicilies, for the Infant Carlos, and, in 1748, of Parma, for the Infant Philip. Naples and Sicily were ceded to a Spanish Bourbon. Under the reign of Charles III., 1759—88, the Bourbon family compact of 1761, involved Spain, to its injury, in the war between the French and British. The expeditions against Algiers likewise miscarried; as did the siege of Gibraltar, in the war of 1779—83. Yet this did not disturb the course of the internal administration, to the improvement of which, men like Aranda, Campomanes, Olavides, and Florida Blanca, devoted themselves. They provided particularly for the advancement of agriculture, the useful arts, and commerce. The population consequently increased. According to the census of 1768, it amounted to 9,300,000, and, in 1798, to 10,061,000 men. The power of the inquisition was restricted, and the secret opposition of the Jesuits annihilated at a blow, by the pragmatic sanction of April 2, 1767, which banished them from all the Spanish dominions, and confiscated their property. But the imagination of the nation was employed upon the mystery of the immaculate conception, and the sinless purity of the virgin Mary. The pope, at the desire of Charles III., declared the whole Spanish monarchy, together with the colonies, under the protecting influence of the immaculate conception. The king established some orders with the device of a female figure dressed in white and blue, in allusion to this doctrine; and every Spaniard, who wished to receive a degree from a university, or to belong to a corporation, and even mechanics, on joining the associations of their trades, were obliged to take an oath of their firm belief in the immaculate conception. The progress in improvement, even during the reign of Charles IV., 1788—1808, was obvious; so that Florida Blanca was able to quiet the wish of the people for the reassembling of the ancient cortes. But he was superseded, in 1792, by Godoy, whose administration was as void of plan as it was injurious to the state, and greatly exasperated the nation; so that the fall of the most fortunate and proudest favourite of modern times, was immediately followed by that of the royal house. Spain, at first, entered with zeal into the war against the French republic (the voluntary contributions of the nation to the expenses of the war amounted to 73,000,000 francs); but the favourite, who wished to conduct the war from his palace, ruined all, and hastened to conclude the discreditable peace of Basle, by which Spain resigned half of St Domingo; on which occasion Godoy received the title of "prince of peace." He then concluded with the republic, the leaders of which deluded him with the prospect of placing a Spanish prince on the throne of France, the important offensive and defensive alliance of St Ildefonso, in 1796, and declared war against Britain; but being defeated at sea, Spain lost Trinidad, by the peace of Amiens, in 1802. In consequence of the entire interruption of the colonial trade, taxes and debts increased, whilst the credit of the nation sunk. The prince withdrew from the conduct of affairs, but his relation Cevallos (q. v.), after the banishment of the able Urquijo, became prime minister in 1800. The prince retained his influence, and rose to high dignities. He leaned to the politics of Napoleon, and commenced military operations, in 1801, against Portugal, which was obliged to cede Olivença to Spain, at the peace of Badajoz; whilst France took possession of Parma, and made its duke king of Etruria in 1801; in consequence of which, Spain ceded Louisiana to Napoleon, who, in 1803, sold it to the United States. Charles IV., in the war between Britain and France, in 1803, having purchased permission to remain neutral, by a monthly tribute of 1,000,000 piasters to Napoleon, the British seized the Spanish frigates, which were carrying the products of the American mines to Cadiz (October, 1804); and Spain, though suffering under great exhaustion, famine, and the yellow fever, was compelled to declare war against Britain. The victory of the British at Trafalgar, October 21, 1805 (q. v.), destroyed its naval power; the bold Miranda, excited the desire for independence in Spanish America, in 1806, and Napoleon overthrew the throne of the Bourbons in Naples.—See the works of Desormeau, *Chronological Abridgment of the History of Spain* (in French); and of W. Coxe, *Memoirs of the Kings of Spain of the House of Bourbon* (1700—1788, 2d edition. London, 1815).

Spain from 1808. The prince of peace (October 3, 1806) called on the nation to arm against "the common enemy;" and Napoleon, therefore, sent a Spanish army, under Romana, to Denmark, and another, under O'Farill, to Tuscany. October 27, 1807, he concluded a secret treaty at Fontainebleau, respecting the division of Portugal, mentioned in the article *Napoleon*. Twenty-eight thousand French soldiers, maintained by Spain, marched over the Pyrenees, and were joined by 11,000 Spaniards. The family quarrels of the royal family favoured the plans of the French ruler in Spain. The prince of Asturias (Ferdinand) had refused to marry the sister-in-law of the prince of peace; and, to secure himself against the vengeance of the offended favourite he wrote, by the advice of Escoiquiz, his former teacher (October 11, 1807), to Napoleon for protection, and requested the hand of one of his nieces. The emperor did not answer this letter till April 16, 1808, when the prince was on his way to Bayonne. At the time of his writing to Napoleon, the prince had addressed a letter to his father, exposing the mistakes and abuses of the administration, and requesting to be allowed some participation in the government. The queen was enraged, and the prince, Escoiquiz and the duke of Infantado were arrested. Charles IV, at the instigation of Godoy, now wrote to Napoleon, stating that the prince of Asturias had intended to dethrone him, and to deprive his mother of life, so that he ought to be excluded from the succession. The junta, however, which was convened for that purpose, unanimously acquitted the prince and the other prisoners; but Godoy induced Ferdinand to ask pardon of the king and queen; on which the king caused the letter to be published in the Gazette of Madrid, and issued a decree granting pardon to the prince on account of his repentance. The other prisoners were banished. Thus ended, in November, 1807, the process of the Escurial. In the mean while, French troops had entered Spain. Charles IV. received them as allies; but, on a sudden, the court prepared to leave Aranjuez for Seville. It was rumoured that the royal family intended to go to Mexico. A violent commotion now took place in Madrid, and multitudes flocked to Aranjuez. March 18, 1808, the people and the soldiers broke out into fury against the prince of peace, who was only saved by the promise of the prince of Asturias, that he should be brought to justice. In other parts of the country, also, the people showed their bitter hatred of this unworthy favourite. Charles IV., on the same day, took the command of the army and fleet, the prince of peace being dismissed. But on the 19th, he resigned the crown in favour of his son, of which he informed Napoleon, as he had done of the former step. Ferdinand VII., on March 24, made a public entry into Madrid, which had been occupied by Murat, grand-duke of Berg, and commander of the French troops, the day previous. Ferdinand informed Napoleon of his assumption of the royal power; but the emperor caused the whole family to be conveyed to Bayonne, where he himself arrived, April 15. Charles IV. had secretly retracted his resignation, on March 21; and on the same day the queen had written to Murat, to obtain protection for the prince of peace. Charles IV. informed Napoleon of his having retracted his resignation; and, in short, the affairs of the royal family were most wretchedly embroiled. During the meeting at Bayonne, a commotion, attended with bloodshed, took place, on May 2, at Madrid. The Spaniards had been excited by the arrogance of the French, and attacked them. Many were killed on both sides. This event is thought to have hastened the steps taken at Bayonne. But though the most enlightened part of the Spaniards were in favour of Joseph, and all the ministers of Ferdinand VII. entered Madrid with him (July 20), some parts of the country would not acknowledge him so easily, in many cases instigated by the priests and monks, who had every thing to fear from a more enlightened government. It could not, however, be expected that any country should change dynasties so suddenly without a struggle; yet this struggle would have, at length, ceased, had it not been kept up, in the sequel, by the support of Britain. The people in Asturia first took up arms; Arragon, Seville and Badajoz followed. Palafox carried from Bayonne to Saragossa the order of the prince of Asturias, that the people should arm; and the supreme junta received permission to assemble the cortes. Revolution broke out every where, which the French were too weak to resist. Moncey retreated to Valencia; and generals Dupont and Wedel were beaten at Baylen, July 19 and 20, 1808. The badge adopted by the Spanish soldier was a red ribbon, with the inscription *Vencer o morir por patria y por Fernando VII.* June 6, the junta at Seville had issued a proclamation of war. The French squadron at Cadiz surrendered, June 14, to the Spaniards. Six days later an insurrection broke out in Portugal. July 4, the alliance of Great Britain with the Spanish nation was proclaimed, and a struggle began, which, whatever opinion may be entertained respecting the conduct of Napoleon, every one will admit to have led, as far as respected Spain, to nothing but evil. Marshal Bessières was successful in the battle at Medina del Rio Secco, July 14, over general Cuesta; but the affair at Baylen, above mentioned, decided the retreat of the French from Madrid, and, August 23, Castanos entered the city. General Romana had secretly embarked his troops at Fühnen, and landed in Spain, and Wellesley was victorious over the French under Junot, August 21, at Vimeira, on which the French general capitulated the day after at Cintra, and soon after evacuated Portugal. A central junta had been formed September 25, 1808, but unity did not prevail in it. Napoleon advanced with a new army, November 6, as far as the Ebro. On the 10th, Soult defeated the centre of the great Spanish army. Victor and Lefebvre's victory on the 11th, at Espinosa, opened the way to Asturia and the northern coast; and, in consequence of the success of Lannes, at Todela, November 22, many fugitives took refuge in Saragossa. (See *Saragossa*.) The mountain pass of Somo Sierra was taken by assault, by the French and Poles, November 30, under Napoleon and Bessières; and, December 2, the French army appeared before Madrid, which surrendered on the 4th. The central junta now retired to Badajoz, and afterwards to Seville. The Spaniards believed that the success of the French was owing to treachery, and more than one of their generals was assassinated in consequence of the suspicion. The French gained many victories and took many fortresses; but the conquerors remained masters only of the places which they occupied. The guerillas surrounded and harassed them every where.* No line of communication was safe for the French: their means of support failed. In vain did Napoleon, December 4, 1808, abolish the feudal privileges, and the inquisition; in vain did Joseph try every means to win the love of the people; nothing could avail against the fanaticism of the monks. Austria now declared war. Napoleon was obliged, in January, 1809, to leave the conduct of the war to his marshals; and the Spaniards considered his departure as a victory. During the following five years, the French generals did all that talent and courage could do; but the charm of Napoleon's presence was wanting, and Wellington finally triumphed over them. The situation of Joseph became extremely unpleasant, even as regarded his relations with France, as has been stated in the article *Joseph Bonaparte*. Many of his adherents began to waver when the rumour was spread that Napoleon intended to separate some provinces from Spain; against which, however, Joseph declared himself explicitly. The struggle continued during six bloody campaigns, from May 2, 1808, to the battle of Toulouse, April 10, 1814. Every where, and almost daily, blood was shed, from Cadiz to Pampeluna, and from Grenada to Salamanca. No mercy was shown. Spanish women tortured and murdered the prisoners. Seven hundred French prisoners were drowned in the Minho. In Oporto and Coimbra, the French sick and wounded were murdered in the hospitals. Even non-combatant officers were killed. The supreme junta created armies with restless activity. Napoleon's exertions were also great. The French forces in the peninsula, when most numerous, viz. when Masséna marched with 80,000 men to Portugal, amounted to 200,000 infantry and 30,000 cavalry; and, in 1813, when Madrid and Valladolid were evacuated by them, to 130,000 infantry and 20,000 cavalry. The non-combatant officers, besides, were extremely numerous. In the French lines, the sword and dagger, plague and want, were active in the work of destruction. De Pradt estimates the loss which France suffered in the actual expenses of the war, during six years, at 230,000,000 of francs, without reckoning the loss occasioned by the interruption of commerce. Two objects chiefly occupied the French generals in 1809 and 1810—the re-conquest of Portugal, and the march over the Sierra Morena to Cadiz. As the British had become masters of Portugal, and the northern coasts of Spain, including Ferrol and Corunna, were again open to their ships, the re-conquest of Asturia was not effected by Ney and Kellermann until May 14—20, 1809. In the meantime, Sir Arthur Wellesley (subsequently duke of Wellington) advanced from Lisbon, by the way of Alcantara, up the Tagus, and Cuesta joined him near Traxillo, whilst the British general Wilson advanced over Placenzia, and the Spaniard Venegas, from the Sierra Morena, towards Madrid. This bold plan of attack was frustrated by the battle of Talavera (July 27 and 28). The British, indeed, were victorious over Joseph, Victor and Jourdan; but, not being sufficiently supported by the Spaniards, and being threatened by Soult and Ney advancing on their flank, they were obliged to retire to the frontiers of Portugal; after which Venegas also began to retreat, and was defeated by Joseph at Almonacid, August 11, as was Wilson by Ney, in the passes of Baros. Madrid thus escaped a siege. August 18, the Spanish orders of monks were abolished; but this measure was far from popular, and the sufferings of Spain, which the people, as usual, attributed to the existing government, tended greatly to aggravate the excitement of the mass of the nation against their French sovereign. The central junta at Seville now resolved to yield to the universal wish, to assemble the cortes and to nominate a regency. New armies were created. Arezaga advanced with 55,000 men as far as Ocana, where, however, he was entirely defeated by Mortier, November 18. Madrid, therefore, was again saved; but in Catalonia, Arragon and Biscay, the bloodiest struggle was carried on with the bands of the insurgents. The Empecinado's troop advanced even to the vicinity of Madrid. In Old Castile, the troops of Barrioluchio, Couvillas, Rodrigues and Jacobe, in Navarre, the troops of Mina, were a terror to the enemy. The largest company of them, 4500 men, under the dreaded Marquesito, formerly a colonel in the army, encountered several French generals in the open field. In vain did the French establish fortresses on their lines of communication, and endeavour to protect their rear by movable columns. Yet their plan against Andalusia succeeded. With 22,000 men, the rash Arezaga thought he could maintain the line on the Sierra Morena, fifteen leagues long, intrenched and mined, and having in its centre the fortified pass of Peraperos, against 60,000 troops commanded by the best generals of Europe. Dessolles and Gazon, on January 20, 1810, took the pass of Despenna-Peras; Sebastiani stormed the defile of St Estevan, and took the bridges over the Guadalquivir; and, January 21, Joseph entered Baylen. Jean was conquered; Cordova submitted. Sebastiani occupied Grenada January 29, Malaga February 6, and Joseph entered Seville February 1, from which the junta had fled to Cadiz. This place, the only one which remained in the hands of the Spaniards, defended by 16,000 men under Albuquerque, and 4000 British soldiers under Graham, and the combined British and Spanish fleets, was besieged February 6; but all the efforts and offers of the French were in vain. The war in Catalonia and Arragon continued. In Leon, the French conquered Astorga, April 22, and now directed their arms against Portugal. In this country, to the north of the Tagus, Wellington commanded a British army of 30,000 men, and Beresford a Portuguese army of 59,500 men, besides 52,800 militia. The right wing of Wellington, at Badajoz, was joined by 20,000 Spaniards under Romana, and 8000 under Ballesteros. The main body of the allied force was posted on the heights of Lisbon, which had been rendered impregnable. Wellington's plan, therefore, was defensive. Masséna began his undertaking in June, by the siege of Ciudad-Rodrigo, which surrendered July 10, and Ney entered Portugal, over the river Coa, July 24; but Almeida, which was defended by Coxe, detained Masséna until August 27, when it was obliged to capitulate. Wellington ordered the whole country, through which Masséna could follow him, to be laid waste; and the latter was obliged to take measures for the support of his army during four weeks, before he could proceed. At last, Masséna advanced, September 18, over the Mondeja, to Coimbra. On this march, he was beaten, on the 27th, at Busaco, but nevertheless, was able to occupy the heights of Sardico, which opened to him the plains of Lisbon. Wellington now entered the strong position of Torres-Vedras, which consisted of two lines on the heights of Lisbon, defended by 170 well-placed works and 444 cannons. Masséna found this position unassailable, and retreated, after several engagements of little importance, November 14, to Santarem. Here he remained till March, 1811, when he was compelled, by want of provisions, to evacuate Portugal entirely. He hardly succeeded, by the battle of Fuentes d'Onoro, of two days' continuance, in effecting a union with the garrison of Almeida, which blew up the works, and fought its way to him under Brenier. But the French were victorious at other points. Suchet, January 2, 1811, took the important fortress of Tortosa, in Catalonia, and, June 28, after a murderous assault of five days, the fortress of Tarragona: Soult took the frontier fortresses towards Portugal, Olivença and Badajoz, March 10; and Victor defeated the British general Graham, who wished to deliver Cadiz, March 3, at Chiclana. In the autumn, Suchet marched against Valencia. After having beaten the army under general Blake, Saguntum fell, October 26, and Valencia surrendered, January 9, 1812. Wellington now again entered Spain. January 19, he took Ciudad-Rodrigo, and, April 7, Badajoz. But he was ill supported by the cortes and the regency, consisting of general Blake* and the naval officers Agar and Ciscar. Marmont was now at the head of the army in Portugal. But the loss of the decisive battle of Salamanca, July 22, 1812, obliged him to give up the defence of Madrid. Wellington entered the city August 12. The French retired from before Cadiz August 25, 1812: they withdrew their forces from the south of Spain, and concentrated it in the eastern and northern parts. After the occupation of Madrid, Wellington followed the enemy to Burgos; but the seige of the castle of Burgos, after several unsuccessful assaults, occupied him from September 19 to October 20, when he gave it up, as the Spaniards afforded him insufficient support, and the French had received succours. He retreated to the Duero. After several engagements, he transferred his head-quarters to Freynada, on the frontier of Portugal, November 24, and the French again entered Madrid. Thus ended the year 1812, in which 134 members of the cortes had drawn up a new constitution for the monarchy, and signed it, March 18, at Cadiz. March 20, the regency took the oath to maintain it. This constitution was acknowledged by the allies of Spain—Great Britain, Sweden, Denmark, Prussia, &c.—also by Russia, in the treaty of alliance concluded with Spain, at Welicki-Lucki, July 20, 1812. It perhaps gave too much power to the cortes for a monarchical government, and a people so little accustomed to the exercise of civil rights. At length Napoleon's disasters in Russia decided the fate of the peninsula. Soult was recalled in the beginning of 1813, with 30,000 men, from Spain. Suchet left Valencia in July, but delivered Tarragona, which was besieged by Bentinck, in August, and withstood Clinton on the Lobregat. But Joseph had been obliged to leave Madrid again, May 27, and Wellington had occupied Salamanca, May 26. The French army, commanded by Joseph and Jourdan, retreated to Vittoria. Here Wellington overtook the enemy, and gained the splendid victory of Vittoria, June 21; after which the French army, pursued by Graham and Hill, retreated in disorder over the Pyrenees to Bayonne. It lost all its baggage. The victors immediately invested Pampeluna. Count Abisbal occupied the pass of Pancorbo. Graham besieged St Sebastian, and Wellington entered France July 9. In the mean time (July 1), Napoleon, then in Dresden, had appointed marshal Soult his lieutenant and commander-in-chief of his armies in Spain. He united the beaten corps, and opposed a considerable force to the victor. July 24, the struggle began in the Pyrenees, and was maintained until August 1, on every point. Wellington, on August 31, took St Sebastian by assault, after having several times repulsed the enemy, who approached to deliver the garrison. It was not, however, till October 7, that he left the Pyrenees, and passed the Bidassoa. After Pampeluna had fallen (Oct. 31), no French soldier was left on the Spanish territory, except in Barcelona and some other places in Catalonia. Wellington now attacked the enemy on the fortified banks of the Niville (Nov. 10), and Soult retreated into the camp of Bayonne. But, until Wellington had passed the Nive (Dec. 9 and 10), and had repulsed several attacks, which continued to the 13th, it was not possible for him to obtain a secure footing in the hostile territory. His head-quarters were at St Jean de Luz. Thence he repulsed, in 1814, Suchet's attacks on the Garve. Feburary 26, he fought a battle with Soult at Orthies, by which the latter was driven from his strong position, and obliged to retreat, in great disorder, to the Upper Garenne. Wellington followed the French, under Soult, to Toulouse, where the bloody battle of April 10, and the occupation of the place, put an end to the war.

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* According to Carnicero, the system of the guerillas was principally organized by Romana. General Juan Martin, surnamed the *Empecinado*, collected a body of them in the neighbourhood of Madrid. Among the other guerilla leaders, Mina and Porlier were distinguished. This system preserved the energy and the confidence of the nation unbroken. After every reverse, the Spaniard consoled himself with the well-known *non importa*.

The cortes had already held its first session (Jan. 15, 1814), and had resolved that Ferdinand VII. should swear to preserve the constitution, before he should be recognised as king. The treaty of Valençay, between Ferdinand and Napoleon (Dec. 11, 1813), was made void by declaring all the acts of the king during his captivity null. Ferdinand arrived at Valencia, where he received the deputies of the cortes, April 16. In reply to their question, when he would swear to maintain the constitution, he answered coldly, "I have not thought about it;" and, on the 4th of May, he issued a proclamation, declaring it invalid. May 14, he entered Madrid, after having caused the principal members of the regency, and sixty-four members of the cortes, to be arrested. The people, dissatisfied with the new direct taxes which had been imposed by the cortes, received him with acclamations. The friends of the cortes and of Joseph were persecuted with the greatest rigour. All officers above the rank of captain, who had served under Joseph, were condemned to perpetual banishment, with their wives and children, and many civil officers received the same sentence. Freemasonry was abolished, and the inquisition was revived; the conventual estates were restored, and the Jesuits recalled, and reinstated in all the rights and property of which they had been deprived since 1767. And, although the king had solemnly promised a new constitution, founded on liberal principles, in place of that of the cortes, declared his abhorrence of despotism, and promised security of property and person, liberty of the press, &c., none of these promises was fulfilled. The persecutions for political offences produced disturbances and conspiracies in different parts of the country. A great number of officers, who had aided in the restoration of Ferdinand, were executed as conspirators, on account of their opposition to the domineering pretensions of the monks. The army was in the highest degree disaffected to these proceedings, and guerillas, or bands of soldiers, infested the interior. Even the lower classes, though averse from liberal principles, were discontented with the severity of the government, while the better classes were divided into the hostile factions of the serviles and the liberals. Those counsellors who ventured to remonstrate with the king, as the Empecinado, Ballesteros, &c., were banished or thrown into prison. For six years, Ferdinand reigned with absolute power (1814—1820.)

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* In 1813, the cardinal of Bourbon, archbishop of Toledo, took Blake's place.

The dispute with the court of Brazil, which had occupied the Banda Oriental while Spain refused to give up Olivenza to Portugal, would have resulted in the invasion of Portugal, but for the interference of the British. In 1820, Spain ceded Florida to the United States, for the sum of 5,000,0000 dollars. Preparations were meanwhile making against the American insurgents, who were declared rebels by the king, and required to submit themselves unconditionally. These preparations served only to exhaust the resources of the state; and the insurgent privateers captured Spanish vessels in sight of the coast, while the Spanish officers were literally dying of hunger. Cadiz at length obtained permission to fit out frigates, at its own expense, for the protection of its trade. The people were oppressed with extraordinary taxes, and recourse was had to loans. The sentence of the arrested members of the cortes was finally pronounced by the king, after repeated dissolutions of the commissions named for that purpose, on account of their mild proceedings. They were condemned to imprisonment in the fortresses and African *presidios*, or banished to the convents, or obliged to enter the army. From 1814 to 1819, there were twenty-five changes in the ministry, mostly sudden, and attended with severities. They were produced by the influence of the *camarilla*, or persons in the personal service of the king. Every attempt to save the state was frustrated by such counsellors, and the overthrow of this ancient monarchy was accelerated by the loss of the American colonies. The army was the instrument of its fall; several conspiracies had been organized by the officers for the restoration of the constitution of the cortes, and Porlier, Mina, Lacy and Vidal, were successively the leaders of the conspirators. Mina had been obliged to save himself by flight; the others had been executed, and their friends had suffered on the rack, or been thrown into prison. The army was indisposed to the American service, for which it was destined, and the officers favourable to the constitution of the cortes, took advantage of the state of feeling to effect their own purposes; whole regiments had determined not to embark, and the commander himself, O'Donnel, count del Abisbal, was in the secret. But finding his ambitious project of becoming dictator of the monarchy frustrated by the civil authority, he caused a division of troops which had given the signal of insurrection to be disarmed (July 8, 1819) and the officers, 123 in number, to be arrested. The embarkation of the troops was fixed for January; but, on the first day of the month, four battalions, under Riego, proclaimed the constitution of 1812, surrounded the head quarters of general Callejo, who had succeeded O'Donnel in the command, took possession of the town of Isla de Leon, and delivered the officers arrested in July, among whom was Quiroga. The insurgents were unsuccessful in their attack on Cadiz, but occupied La Caracca, where the naval arsenal, a ship of the line, and other vessels of war, with some transports, fell into their hands. Quiroga declared, in the name of the army of the nation—the title assumed by the insurgents—that it was their purpose to obtain from the king the acceptance of the constitution. All attempts to engage the people of Cadiz in the cause, were frustrated by the influence of the bishop of Cienfuegos. Meanwhile the troops in Seville had put general Freyre in command; and the king had confirmed him in the post on account of his popularity among the soldiers. Freyre endeavoured, without success, to detach the insurgents from their leaders by promises of amnesty; but he did not venture to attack them, from fears of the fidelity of his own soldiers. Riego, at the head of a troop of 2500 men, now occupied Algesiras, entered Malaga, and, after some fighting with O'Donnel, advanced through Ecija and Cordova to Antequera, while the national army, under Quiroga, in addresses to the king and to the nation declared their only object was to save their country by the restoration of the constitution, which had already been accepted by the nation. Risings now took place in all quarters in favour of the constitution of the cortes; the royal forces joined the insurgents; Freyre himself was obliged to proclaim the constitution in Seville; and Ferdinand, abandoned, by his own troops, was obliged to yield to the general cry, and, by proclamation of March 8, declared himself ready to summon the cortes of 1812, and accept the constitution of that year. On the same day, a general amnesty was proclaimed. On the 9th, a provisory junta of eleven members was named, to conduct the affairs till the meeting of cortes; and Ferdinand swore to observe the constitution in presence of this body, and of the municipal authorities of Madrid. The inquisition was abolished on the 10th, as inconsistent with the constitution, and obnoxious ministers, &c., were succeeded by others favourable to constitutional principles. In place of the Council of Castile, and that of the Indies, a supreme judicial tribunal, with appropriate subordinate courts, was established, national guards were organized in the provinces, the municipal authorities were made to conform to the constitution, and the cortes finally assembled, July 9. It was composed of 149 deputies for the peninsula, and, in place of regular deputies from America, of thirty delegates of the Americans in Spain. In a session of four months, this body endeavoured to moderate the violence of the liberals, to restore the *afrancesados* to their rights, to counteract the machinations of the *serviles*, and to heal the wounds of the country. But the abolition of many of the convents, and of the *majorates*, the banishment of the non-juring clergy, and some other of their measures, excited discontents. An apostolical junta established itself on the frontiers of Portugal, and in several provinces, bands of peasants, monks, and guerilla soldiers were formed, for the purpose of restoring the privileges of the crown and the clergy. On the other hand, some parts of the country were disturbed by popular excesses. In March, 1821, began the second session of the cortes, which, in April, declared the whole country in danger, and in a state of siege. The command of the armed force was now given to Morillo, and quiet was in some measure restored. But the ultra-liberals, or *exaltados*, as they were called, were not a little excited by the events in Naples and Piedmont, in 1821; and the kingdom was in so disturbed a state that an extraordinary cortes was summoned in September. In the summer, Catalonia was desolated by a yellow fever, which, since 1800, had prevailed almost every year in the southern parts of Spain. At the same time, Mexico declared itself independent; Lima was occupied by the Chileans, under San Martin; and the Spanish part of the island of St Domingo was lost by its union with Hayti. Under these circumstances the government wished to temporize; but the *comuneros*, or the party of the adherents of the constitution, at the head of whom were don Romero Alpuente and don Diaz de Morales, made complaints of the weakness and mistakes of the ministers, and the cortes, in December, 1821, requested the king to appoint an abler ministry. He at last yielded, in 1822: on the other hand, the cortes passed several laws by which the *descamisados*, who were in favour of a republic, were disarmed. The *absolutistas* alone, though beaten every where by the troops of the government, could not be entirely suppressed; the cortes declared themselves ready, at the same time (Jan., 1822), to acknowledge America as a kingdom independent of Spain, but united with her under a common sovereign, Ferdinand VII.; but the deputies sent to America could effect nothing on these conditions. The session of the extraordinary cortes was concluded February 14, 1822. In the third session of the cortes, from March 1 to June 20, 1822 (during the first month under the presidency of general Riego), the moderate liberal party prevailed at the outset, and tranquillity was gradually restored to the internal affairs of the country, when it began to be threatened from without. The strong sanitary cordon of French troops along the Pyrenees, and the intrigues of the exiles, led the government to suspect that the disturbances excited among the peasants in Navarre and Catalonia, by priests and monks, were instigated by the French government. Bands of *soldiers of the faith*, so called, who, under political pretences, frequently committed robbery on the high-ways, infested other parts of the country. The cortes therefore armed the volunteer national guards. They were every where victorious; but the pecuniary resources were chiefly in the hands of the supporters of despotism. Most of the educated classes belonged to the *comuneros*. The freemasons formed also a powerful party, and were in possession of most of the offices, while the friends of absolute power instigated the democrats, particularly the *zurriagists* so called from the Gazette termed *Zurriago* (a whip), to excesses which they hoped would disgust the moderate party with constitutional liberty. The Landaburu club, in which terrorism was recommended, became important. Discontent was kindled against the ministry, which attached itself particularly to the freemasons; and, in July, 1822, the friends of absolute government dared to attempt the overthrow of the constitution, with the assistance of the royal guards; but the national guards frustrated their project. The royal guards, in spite of the opposition of Murillo, their commander, entered Madrid July 7; but Ballesteros, at the head of the national guards, defeated them, and they fled into the royal palace: but the king, who favoured them originally, now showed himself irresolute. They were unable to resist the popular force, but would have been allowed to retire, if they had not again fired on the national guards, who then fell upon them, and killed or wounded the greater part of them. On the 8th, every thing appeared calm. The *anilleros*, or moderate party, who had been in favour of a chamber of peers, and the extension of the royal power, now joined the popular party (the *comuneros*). All the ministers resigned, as the king had offended them by keeping them confined in separate rooms in his palace during the insurrection of the guards. The new ministers acted in conformity with the views of the *comuneros;* and the king, whose authority had sunk entirely since July 7, approved of every thing which they proposed. Many persons of rank, including some bishops, were banished. General Elio was executed; but the guards were treated with much mildness. The king again declared his adherence to the constitution; but the apostolical troops in Biscay, Navarre and Catalonia, continued their revolting cruelties. Under the marquis Mataflorida a regency of the friends of absolute government was established at Seco d'Urgel, near the French frontier, in August 1822. It issued orders, in the name of the "imprisoned" king, for the restoration of every thing to the state in which it had been before March 7, 1820. The troops of the apostolical party, after much bloodshed, were beaten by Mina and Milans. Generals Espinosa, Torrijos, and Jaureguy, called *El Pastor*, distinguished themselves against Quesada, a Trappist, and others. The regency fled to France in November, 1822; and it was obvious that its cause was not that of the nation. No troops of the line nor national guards, no important cities or individuals went over to them. Some companies of "soldiers of the faith" still continued in Spain, particularly those of Bessières, Ullmann, &c. An extraordinary cortes was again convened, which, from Oct. 7, 1822, to Feb. 19, 1823, was occupied with raising and equipping an army, and with the care of the foreign relations. The pope refused to receive the Spanish ambassador Villanueva, and the papal nuncio in Madrid left the city in January, 1823. Britain received an indemnification of 20,000,000 francs for damage done to British vessels by Spanish privateers in the American waters. France threatened war, and the royalists of that country assisted the apostolical party in Spain. At last, the French government aided the equipment of apostolical soldiers on French territory; and, in November, 1822, France acceded, at the congress of Verona, to the principle of armed intervention, pronounced by Austria, Russia, and Prussia, in relation to Spain. The French ambassador at Madrid, La Garde, received orders to advise a change in the constitution, as the condition on which a continuance of peace between France and Spain must depend; and, in order to enable Ferdinand VII. to make such changes freely, he must first of all be restored to the full enjoyment of sovereign power. The same demand, and even in bolder terms, was made by the ministers of Prussia, Austria, and Russia, while Britain advised the cortes to yield, and offered her mediation. The Spanish government answered the notes of the foreign ministers in a circular, of Jan. 29, 1823, addressed to its foreign ministers, and repelled with indignation the interference of the foreign powers. The remarkable sessions of the cortes (Jan. 9 and 11) showed that all parties among them felt alike on this point. The threatened discontinuance of diplomatic intercourse on the part of the foreign powers now took place. The French ambassador was recalled, after the Russian, Prussian, and Austrian ministers had left Madrid. 100,000 French soldiers were assembled with the *feotas* (soldiers of the faith) at Perpignan and Bayonne, and the cortes summoned the national guards to serve with the troops of the line; but the attempts to raise an army were unsuccessful because bands of the *feotas* gave full employment to the troops of the line and the national guards in various quarters. February 19, the ministers were dismissed; but disturbances in Madrid obliged the king to reinstate them. The king now remained in general, passive. The seat of government was transferred to Seville. April 2, the Duke of Angoulême issued a proclamation to the Spaniards, declaring that the object of the French was only to aid them, and that France desired nothing but the deliverance of Spain from the evils of revolution: and, without a declaration of war, the French army passed the Bidassoa, April 7, and marshal Moncey entered Catalonia towards the end of April; with him entered the *feotas* or *afrancesados*, under Quesada and Eroles. The duke of Angoulême established a junta, consisting of Eguia, Calderon, and Erro, who formed a provisional government, declared the king the sole depositary of sovereign power, and that no change in the government should be recognized but such as the king should make of his own free choice. All the decrees of the cortes were declared void. The cortes had no ally. The relations of Portugal to Great Britain did not allow her to conclude a defensive treaty with Spain. The treaty made March 8, 1823, between the two countries, only provides for the exchange of deserters, criminals and rebels; and the fourth article contains a remarkable stipulation, allowing each of the governments to pass the frontiers of the other in the pursuit of rebels, and to carry on such pursuit either by itself or by the aid of the military power of the other. Britain remained neutral, though Canning, in parliament, called the attempt of the French unjust, and wished the arms of the cortes success. Her government, however, allowed the exportation of arms and ammunition to Spain; and, in return, the ports of the new world were opened to her ships. April 23, the king of Spain formally declared war on France. The cortes were deceived respecting the state of the nation, and hoped that Britain would take part with them in the war; but a memorandum, sent by the duke of Wellington to Madrid, in which he earnestly recommended a change of the constitution, was not heeded, and Britain remained neutral. The adherents of the constitution were confined to the educated class, the army, and the people of the cities: the country people were under the influence of the priesthood. April 11, the king arrived in Seville. April 27, the cortes passed a law respecting the registering of all rights on personal service or real property, which rendered the great landholders unfriendly towards the constitution; and in vain did Ferdinand VII. call on the nation by a proclamation, May 1, 1823, to support the constitution. The French army consisted of 91,800 men, including the Spanish division. The French government provided, at an immense expense, for the support of the army; every thing was well paid for in ready money; discipline was strictly maintained, and no one was persecuted by the French for his political opinions or former conduct, while the Spanish troops gave themselves up to the greatest excesses of party hatred. The French were received, by the clergy and the lower orders of the people, as "good Christians." The Spanish army amounted to about 120,000 men, in four divisions, commanded by Ballesteros, Mina, L'Abisbal and Morillo. San Sebastian and Pampeluna, Santona and Santander, made a good defence, but were obliged to surrender, Santona on the 11th, Pampeluna on the 17th, and San Sebastian on the 27th of September. The French corps not employed in the siege of these places marched, without difficulty, into the interior. Only at Logrono an engagement took place, April 18, in which the French were defeated. Upper Catalonia, Biscay, Arragon and Castile were occupied by the French, with hardly any resistance. A guerilla warfare now commenced in Lower Catalonia, where Mina occupied the enemy for a considerable time. The royalists every where conducted themselves in the most outrageous manner. The duke of Angoulême, commander-in-chief, marched by the way of Aranda and Buitrago, the duke of Reggio by the way of Burgos and Valladolid, to Madrid. Abisbal became suspected by the cortes, and fled to France. May 24, the duke of Angoulême entered Madrid, with a great show of rejoicings on the part of the people. He nominated a regency, consisting of the duke of Infantado, the duke of Montemar, the bishop of Osma, the baron d'Eroles, and don Ant. Gomez Calderon (May 26). The majority of the people demanded the "absolute king," and the regency put every thing on the same footing as before March 7, 1820, except that they confided the ministry of foreign affairs to the confessor of the king, D. Victor Saez. The regency had no pecuniary resources, and no power, if they had the will, to prevent the furious eruptions of party hatred. The theatre of the war was now transferred to Andalusia and Estremadura. The cortes had in vain tried to excite a general guerilla war. On account of the want of money, they decreed the seizure of all the property of persons of the opposite party, a forced loan of 200,000,000 of reals, and the coining of the superfluous church plate, by which measures the hatred of the people was still more increased. Yet the ministers did not dare to propose to the cortes the mediation offered by Britain, through Sir W. A'Court, the British minister. The king refused to go to Cadiz; and a regency of three members, with royal powers, was appointed, because the case of moral incapacity on the part of the king, provided for by the constitution, had occurred. On the 12th of June, the cortes and the king, with the regency, departed for Cadiz; but the people showed themselves so furious against the constitutionalists that the authorities called in the aid of the French; but general Bourmont could not enter until June 21. The king had arrived at Cadiz, June 15, and the regency had again ceased. The regency in Madrid declared all the members of the cortes who had participated in the session of the 11th, when the king was declared morally incapable, to be traitors; but more it could not do: it was so destitute of resources that it was even supported by French money. The kings of France, Prussia, and the emperor of Austria, sent ministers to the regency in Madrid. Morillo declared himself, on June 26, against the cortes. In vain did Quiroga, in Corunna, where Sir Robert Wilson also was, collect a troop of constitutionalists, with whom he continued the struggle. The heights of Corunna were taken, July 15th, by general Bourck, after a bloody contest, five hours in length. Quiroga then left Corunna, which was bravely defended by Novella until August 13th, when it was surrendered; and the war in Galicia was soon after terminated. Mina, with not more than 6000 men, sustained a partisan warfare, in Catalonia, for two and a half months, unequalled in the boldness and skill with which it was carried on. June 26, he took up his head-quarters near Barcelona. Donnadieu and Curial advanced upon Barcelona, July 8, while Milans and Llanera gradually fell back, disputing the ground before them. General Sarsfield, at this time, abandoned the cause of the constitutionalists, and offered his services to marshal Moncey; the garrison of Cordova planted the standard of Ferdinand, and Barcelona was blockaded by sea. Meanwhile, Molitor had compelled Ballesteros to evacuate Valencia, and gained several advantages over him, which resulted in his capitulation, August 4, and the termination of the campaign. July 23, the regency issued a decree, removing from office all volunteers and members of secret societies; and such was the violence practised towards the friends of the constitution, that the French generalissimo published an ordinance forbidding arbitrary imprisonments, and commanding the release of persons illegally confined for political offences; notwithstanding which the outrages were continued. The duke of Angoulême presented himself, August 16, before Cadiz, which had been previously invested by generals Bordesalle and Bourmont, and took possession of the city on the 4th of October. An act of the cortes, September 28, had already reinvested the king with absolute power, and requested him to retire to the French camp. On the first of October, the king and his family had been received by the duke, in form, at Puerto-Santa-Maria, with cries of *Viva el rey! Viva la religion! Muera la nacion* (Death to the nation)! *Mueran los negros!* The first measure of Ferdinand was to declare all the acts of the constitutional government, from March 7, 1820, to October 1, 1823, void, on the ground that during that time the king was acting under compulsion. The war, which still continued in Catalonia, where Riego had been wounded and made prisoner, September 15, was brought to a close in the beginning of November; and, on the 22d, the duke of Angoulême took his leave of the army of the Pyrenees, which had so successfully accomplished the military objects of its mission. See Pecchio's *Journal of Military and Political Events in Spain*, translated by Blaquière (London, 1824). The political objects of the expedition, to secure a system of mildness and moderation, were frustrated by the bad faith of the Spanish government. (See *France.*) In direct violation of the terms of the military capitulations, a persecuting and vindictive policy was adopted towards the former partisans of the constitution. Among the crowds of fugitives were Mina, the count del Abisbal, Morillo, &c. Riego was executed, at Madrid, November 6, and on the 13th the king made his entry into the capital on a triumphal car twenty-five feet high, drawn by 100 men, and amidst the rejoicings of the people. In addition to the evils caused by the excesses of political and religious bigotry, the bad credit of the government rendered it impossible to raise a loan; and it became necessary to have recourse to the former system of indirect taxes, and even to revive the income tax (*frutos civiles*). To restrain the violence of party fury, a treaty was concluded with France, stipulating for the maintenance of a French force of 45,000 men in the country, until the Spanish army could be organized: and the debt due to France for the expenses of the French expedition was fixed at 34,000,000 francs. At the same time, the Spanish government invited the great powers to hold a congress in Paris, on the subject of the Spanish American colonies; but the opposition of Britain prevented the execution of this project. February 9, 1824, Spain, therefore, opened the ports of her American colonies, as she continued to call them, to the subjects of all friendly powers. The personal moderation of the king towards the constitutionalists led to the formation of a plot by the absolutists, to compel him to abdicate, and to raise don Carlos to the throne (thence their name of *Carlistas*). The introduction of the inquisition was successfully resisted by the moderate party, supported by the French, and was pronounced inexpedient and impolitic even by the pope. The decree of amnesty finally appeared, May 1, 1824, but contained so many exceptions that those who were to enjoy its benefits seemed rather to form the exception than the rule. The year 1825 was disturbed by several insurrections of the Carlists, which were attended with numerous executions; and the frequent changes of ministry which occurred at this period show the weakness of the government. The independence of the colonies was acknowledged by foreign powers, and the general interruption of commerce and industry, with the flight of many persons of property, occasioned much distress. The disturbances continued during the subsequent years, attended with the same marks of feebleness on the part of the government, and a continuance of the general distress. In 1827, Spanish subjects were permitted to trade with the Spanish American republics, but under foreign flags; and in the following year Spain was evacuated by the French troops. The fort of St Juan de Ulloa, near Vera Cruz, was lost November 22, 1825, and Callao, near Lima—the last post on the American continent in the possession of Spain—January 22, 1826. The foolish and ill-concerted expedition against Mexico was terminated by the surrender of Barradas to Santa Anna, in September, 1829. The French revolution of 1830, although it excited some Spanish patriots in exile* to attempt to awaken their countrymen to a struggle for more liberal institutions, had little effect on the people at large. By a royal decree of March 29, 1830, the succession to the throne, which hitherto had been limited to the male line, was extended to the female; and in October of the same year, the queen was delivered of a daughter, Maria Isabella. Since the death of Ferdinand, the succession to the throne has been disputed by Don Carlos, his brother, on the ground that no royal decree could alter the Salique law of the land. This has led to an unhappy contest, which has not yet terminated, although meanwhile the crown remains in the possession of Maria Isabella, under the regency of her mother Christina. A history of the war between the Carlists and Christinos, or Absolutists and Liberals in which so many hundreds of our own countrymen have taken a part, will come to be given in the Supplement to this work.—For the history of Spain, see Mariana's *Historia General de Espana* (to 1612); Bossi's *Storia della Spagna Antica e Moderna* (Milan, 1822, seq.); Robertson's *Charles V.*; Watson's *Lives of Philip II. and Philip III.;* Sempère's *Considérations sur la Grandeur et la Décadence de la Monarchie Espagnole* (Paris, 1826), &c.; Southey's *History of the War in the Peninsula;* Napier's work on the same subject; Foy's *Hist. de la Guerre de la Peninsule* (Paris, 1827); *History of Spain and Portugal,* in Lardner's *Cabinet Cyclopædia* (London, 1831).

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* One of the most distinguished of these was general Torrijos, who entered Spain, with a few companions, for the purpose of stirring up the people, but failed, was taken, and executed.

Spanish Language, Poetry, Literature and Art. To understand these subjects, it will be necessary to say a few words respecting the character and situation of the Spaniard. Nature has given him a beautiful country, the excellencies of which were acknowledged even by the Romans. Claudian says, *Dives equis, frugum facilis, pretiosa metallis.* On account of the situation of Spain, separated from the rest of Europe, the character of the people developed itself, in a great degree, independently of the influences of other nations—a case the reverse of that which has prevailed in Italy, lying, like Spain, beneath a southern sun, but always visited by all the nations of Europe. Gravity, fire, national pride, originality, became characteristic traits of the Spaniards, whose peculiarities were heightened at a later period by their mixture with the Moors—a gallant and chivalrous people—and by a struggle of 700 years against the Crescent, whence originated their peculiar mixture of romantic spirit and religious fervour, not unfrequently rising to fanaticism. The Spaniard is brave, provided his soul is in his cause; but when he becomes excited, he is also cruel, and shows the untamed spirit of the African. The conquest of America affords a dreadful example of what he is capable under the influence of religious hatred, pride and avarice. The deep earnestness of the Spanish character made it capable of carrying chivalry to the highest degree of development; and with all his pride and exquisite sense of honour, the Spaniard has been famous for unconditional submission to the fair, the church, and the king, and could even endure the horrid fetters of the inquisition. The ease of obtaining the necessaries of life in a country so highly favoured by nature, and the wretched government under which it has laboured for a long series of years, are the reasons why industry is much neglected, so that thousands suffer from want. The government is extremely poor, and the country very thinly peopled, compared with other countries in the south of Europe. The Spaniard dislikes to adopt foreign manners, and fights with obstinacy if his national pride is offended. The ancient Celts, before the times of the Romans, carried on wars with the Phœnicians and Carthaginians. The Romans then colonized the country. The Visigoths conquered it in the fifth century. The unfortunate struggle of their descendants against the Moors, in the eight century, obliged them to retire into the mountains and to the sea-shore, where, however, they soon acquired new strength, until, after a contest of seven hundred years, they again delivered their country.—The oldest language of the country was that of the ancient Cantabrians, which may yet exist in the Basque language, spoken by the people of the Pyrenees. This, perhaps already enriched by Phœnician and Carthaginian words, was followed by the Latin during the Roman sway; and Spain gave to Rome herself her best writer on eloquence—Quinctilian. Under the Visigoths, however, there grew up in Spain a *romanzo* or *romance* dialect, yet without extinguishing the Latin before the invasion of the Moors, and without having an opportunity to develope itself much. When the Moors conquered most of Spain, they treated the inhabitants generously; and the Moorish dialect, then already a fine one, and much cultivated for the purposes of poetry, was soon adopted by the people, and within a short time was fluently spoken every where. But in the small kingdoms which originated during the struggle with the Moors, in the mountainous districts and on the sea-shore, the *romanzo* again gained ground with the victories of the people. The descendants of the Visigoths had retired before the Moors, leaving them in possession of the greatest part of the country, and confining themselves to the shores of the Atlantic ocean, to the mountains of the regions subsequently called Asturia, Galicia and Biscay, to the chain of the Pyrenees, and the territories of Navarre and Arragon; and a number of small principalities were formed, all united against the Moors, but, from jealousy and other causes, often at war with each other when not contending against the common enemy. The kingdom of Leon, originally including the whole of what was afterwards called Portugal, became very powerful, and Arragon was the centre of the most vigorous resistance to the Moors. Between the two lay Old and New Castile, Navarre, Catalonia, Valencia, &c. Among the latter, Castile, including the greatest part of the north-west of Spain, having become independent, attained to the highest power, and surpassed even Arragon, with which, after the expulsion of the Moors in the fifteenth century, under Ferdinand, it was permanently united by his marriage with Isabella. This division of Spain naturally had an effect on the Spanish language; and, during the period of the struggle with the Moors, we find as many dialects of the Spanish *romanzo* as Spanish kingdoms. These dialects, however, became blended with each other, on the gradual union of these kingdoms. The *romanzo* became developed at an early period, peculiarly on the coasts of Murcia, Valencia, Catalonia, and Portugal as far as Galicia, where it even took the name of *Galician* language. The Galician language, at a later period, developed itself into the Portuguese —an idiom which vies with the Castilian. The Catalonian dialect flourished in the time of the Troubadours, and continued, after having spread to the kingdom of Arragon, as long as Provençal poetry existed in Spain. But it was entirely superseded by its neighbour, the Castilian dialect, when Arragon and Castile were united under one sceptre. In the heart of Spain, the provinces of Asturia and Leon, which were subjected to the new sceptre, now gave rise, during the struggle against the Moors, to a kingdom which was destined, by its situation, to exercise a commanding influence in the peninsula, viz. the kingdom of the two Castiles. The mountains of Castile were inhabited by a valiant race, among whom the Spanish character was most developed. Here the Castilian poetry and language grew up, and soon obtained the predominance over the poetry and language of the neighbouring Catalonia, which was at last united to Castile. But the Portuguese dialect remained, because Portugal, as early as the twelfth century, formed a separate kingdom. The

Castilian language came to be considered as the standard of Spanish, and became the idiom of the court and the learned, whilst the other languages sunk into mere dialects of the common people. Thus we find, at last, but three chief divisions in the Spanish *romanzo*, of which, however, the third—the Catalonian—has not come down to us; and we may confine ourselves, therefore, at present, to the consideration of the Castilian. Every romance language is a mixture of Germanic languages with the Latin, and each of them received a peculiar character from the nature of the country and of the conquering tribes, from political relations and other circumstances. The dialect of Spain became deeply imbued with the Oriental element, in consequence of the influence of the Moors, who were much more cultivated than the conquered people. The Castilian idiom originated in the mountains of the interior of Spain, and, like that of the Doric mountaineers among the Greeks, was characterized by deep and open tones, which now distinguish the Spanish from the Portuguese. The latter we may compare to the Ionic dialect in the Greek language. The Spanish abounds in full-sounding vowels, and every discourse is filled with assonances. Its rhyme is the most natural and most perfect to be found in the modern European languages. The Spanish gutturals indicate, perhaps, the Teutonic and Moorish elements. The language is peculiarly fitted to express the dignified and the pathetic. Not unfrequently its solemn dignity seduces the Spaniard into bombast. The poetry, the fine arts and general literature of a nation bear the stamp of its peculiarities. Few are the nations among whom these have flourished equally. The Spanish people is decidedly poetical. In works of eloquence, both religious and secular, no language is so poor as the Spanish, though, in some respects, finely adapted for them. As to architecture, Spain may, perhaps, have exercised an important influence, in consequence of the contact into which the Moorish and Gothic architecture were brought in this country. Gothic architecture, indeed, has sprung from the whole spirit of the modern Christian nations, and belongs much more to Germany than to Spain, Italy, and England; but it is very probable that what is called the new Gothic architecture developed itself with more beauty and grace in the neighbourhood of the light, splendid, and rich architecture of the Moors. The innumerable churches of Spain are in the Gothic taste, like the old buildings of Germany and England; and among them are many fine edifices, but not to be compared with the minster of Strasburg, St Stephen's church at Vienna, or Westminster abbey. One of the most remarkable monuments of Spanish architecture and Spanish greatness is the famous Escurial.

Music, dancing, and painting could not be wanting in so poetical a nation. Music was used to accompany their songs and ballads, and every shepherd still knows how to play on his instrument. The dance, so natural to southern nations, acquired a national character in Spain, and, to this day, the Spaniard has many an almost allegorical dance, borrowed from the Moors. Painting and sculpture were used to ornament the churches (Seville, Toledo) and palaces. Madrid has even an *Academia de las tres nobles artes, pintura, escultura y architectura*, and the royal palace of that city and the Escurial have galleries; but there is no proper Spanish school of reputation in either of these arts. Yet we cannot pass by the names of the painters Velasquez, Murillo, Zusbaran, L. de Vargas. The art of dramatic representation never reached a high degree of perfection in Spain. We therefore proceed to the poetry. In general, it may be observed that the spirit of the Spanish poetry is found, likewise, in the Portuguese. Both are the representatives of a peculiar species of romantic poetry. The time when Spanish poetry began to flourish coincides with the origin of the Italian epic, being just at the period when the Provençal poetry expired, in the middle of the fourteenth century. If we consider the time of the Troubadours as the infancy of the modern poetry of Southern Europe, the Spanish poetry, and the Italian, which begins with Dante, form the adult age. The age of the Provençal poetry could not last long in Spain. The life of the Spaniard, filled with battle and toil, was too grave to allow him to be satisfied with poetry of so gay, and often trifling a character. Only at the court of Arragon, and for a short time at that of the king of Castile, there were courts of love and wandering minstrels. The more Castile extended its power from the centre of Spain, the more did the Provençal poetry retire from Arragon, Catalonia, and Valencia, to France. Castilian poetry began with the ballad, passed over to the romance, and reached its highest point in the drama, and in each of these departments always remained of a decidedly romantic character. Spanish poetry differs from the Italian by a peculiar mixture of romantic fervour, frequently of an Oriental kind, with deep gravity. The Moors may have added to this spirit, besides having introduced into Spanish fiction the fairy world of the East. Spanish poetry proceeds always with a solemn pace. Its plays of wit are heavy, and its fondness for allegory excessive. The perfection of the intrigue is one of the great merits of Spanish writers, and they have served as models to the rest of Europe. A great peculiarity of Spanish versification is found in the *redondillas*, which became not only the standing metre of the ballad, but also of the drama, and in the assonances, which the Spaniards carried to the highest perfection. *Redondillas*, in their later form, are strophes of four lines in trochaic verses, mostly of four feet, and are peculiarly adapted for Spanish poetry. In the Spanish sonnets, prior to the connexion with Italy, they assumed the most popular character. The rhyme alone did not satisfy the writers, but the assonance was carried through whole lines. The song was the natural growth of the warlike period of Spain, and served to commemorate martial exploits. No language has such a store of ballads as the Spanish; but they are, particularly the earlier ones, little more than simple, childlike relations of chivalrous deeds. They may be properly divided into the chivalrous (derived especially from the fabulous history of Charlemagne, in which are mingled also tales of Moorish and Spanish heroes—as don Gayferos, the Moorish Calaynos, count Alarcos, &c.) and the historical: of the latter kind, an endless number originated during the struggle with the Moors. After those which belong to the early times of these conflicts, in the ninth and tenth centuries, there arose the brilliant ballads relating to the Cid, the hero of the first Castilian king, Ferdinand. Their nature is fully exhibited to us in probably the earliest poem of length relating to this subject which has been preserved, *El Poema de Cid*—a story whose simplicity and poetic colouring are very striking. It is nothing more, and, in this early childhood of

Spanish poetry, could be nothing more, than a long historical Spanish ballad, without any plot. The language is often very old Castilian, and the verse, which is considered by many as Alexandrine, though it cannot properly be so called, on account of its great want of precision, is truly iambic. It belongs, according to all conjecture, to the twelfth century, and is much superior to the *Poema de Alexandro Magno*, which is of nearly equal antiquity, and to the rhymed prayers, legends, and rules of religious orders, by the Benedictine monk Gonzalo Berceo. In connexion with these ballads should be read those which are taken from the history of the Moors, of which many are found in the *Historia de los Vandos de los Zegris y Abencerrages*, which is itself a sort of romantic chronicle of the Moorish heroes. There are also a number of Spanish ballads, founded on various popular stories. Little different from the ballad was the song; and perhaps the whole difference, especially in the thirteenth and fourteenth centuries, consisted in this, that the song was divided into couplets or small strophes. Subsequently the song became more lyrical; and then arose the *canciones*, properly so called (in twelve lines, similar to the madrigal and the epigram), the kindred species of *villancicos* (stanzas of seven lines), and the poetical paraphrases of known songs and ballads, in which the old songs were interwoven, line by line, with the words unchanged. Spain is distinguished above other countries for having united the greatest part of her ballads and songs in large collections, and thus preserved them to posterity; and the only thing to be regretted is, that the date and the author are not generally given. Thus there is a great collection of ballads made in the sixteenth century, called *Romancero general* (by Miguel de Madrigal, 1604, and Petro de Flores, 1614), and an older one, *Cancionero de Romances*, &c. (Antwerp, 1555). The songs are to be found in the *Cancionero general* of Fernando del Castillo, which belongs to the commencement of the sixteenth century, and was preceded by a *Cancionero de Poetas Antiguos*, in the reign of John II. Here we should mention the *Silva de Romances viejos, publicada par Jac. Grimm* (Vienna, 1815), and Collections of the best old Spanish historical, chivalrous, and Moorish Ballads, arranged with notes, by Depping (Altenb. and Leipsic, 1817). Spain, in the sixteenth and seventeenth centuries, reached its greatest elevation; and when the grandson of Ferdinand the Catholic, Charles V., united the German imperial throne with the Spanish, and was powerful in Italy, Spain became so flourishing that his successor Philip could lavish, without restraint, the resources of his kingdom, which yet were not consumed until about the end of the seventeenth century, when, after the death of the weak Charles, the Bourbon family ascended the throne. With the prosperity of the monarchy, poetry also flourished. Crowned heads, as Alphonso X. in the thirteenth century, and the Castilian prince don Juan Manuel (who died in 1362), had tried their powers in verse and prose; and Manuel's work, the Count Lucanor, a collection of important rules for the lives of princes, remains a beautiful monument of Spanish refinement in the fourteenth century. The knights themselves, and not, as in other lands, merely monks, had employed themselves in writing chronicles; and the Spanish historical style has hence become more dignified and noble. The pursuits of active life and of literature have been so intimately connected in Spain, that its greatest warriors have been also the most intellectually cultivated, and not unfrequently were distinguished poets. Thus we find, in the fifteenth century, at the court of John II., celebrated as a patron of poetry, the marquis Henry de Villena, who has left the oldest Spanish Art of Poetry, under the title of *La gaya Ciencia* (the gay science), and, from his knowledge of natural philosophy, almost acquired the reputation of a magician; and his yet more celebrated pupil, don Inigo Lopez de Mendoza, marquis of Santillana, author, among other works, of the *Doctrinal de Privados* (Manuel of Favourites) in which the favourite of John II., don Alvaro de Luna, who was executed, relates his transgressions, and enjoins moral truths on the turbulent Castilians. Santillana's letter upon the oldest Spanish poetry is very celebrated. Several others, for instance, Juan de Mena (the Spanish Ennius), who died in 1456, author of the allegoric-historical-didactic poem, *Las Trecentas* (The 300 Stanzas), and Rodriguez del Padron, who, in his songs of love, exchanged his French idiom for the Castilian, received distinguished favours from the above-mentioned king. Attempts were now made in all branches of the art. During the reign of John II., and his celebrated daughter Isabella, the dramatic spirit first prevailed. Yet before the time of Juan de la Enzina, who, about the end of the fifteenth century, composed pastoral dramas (also the author of the *Disparates*, which is in the ballad form), the marquis de Villena encouraged the writing of allegorical plays, and an unknown author produced the celebrated satirical pastoral dialogue *Mingo Rebulgo*. Then followed the dramatic romance of Callistus and Melibœa, which was also called a tragi-comedy. Some historical and biographical works of importance appeared at the same time. The Chronicles of the poet Perez de Guzman, and of the high chancellor of Castile, Pedro Lopez de Ayala, have been reprinted in modern times, by the academy of history at Madrid. The History of the Count Pedro Nino de Buelna, by Gutierre Diaz de Games; the History of Alvaro de Luna, by an unknown friend; and the *Claros Varones* of Fernando de Pulgar, still preserve their reputation. Then commences the period when the whole monarchy was permanently united under Ferdinand the Catholic. Spain and Italy were brought into connexion by the conquest of Naples, under the great captain (*el gran capitan*) Gonsalvo Fernandez de Cordova; the inquisition, which restraining the faith of the Spaniards, left freer room to its fancy, was established, and America discovered. Boscan (about the year 1526), nourished by Italian genius, gave Castilian poetry a classic character, by judiciously incorporating in it the excellencies of his Italian models. He confined himself to sonnets and songs; but his friend Garcilaso de la Vega, became the author of very popular pastoral poems, to which, in later times, the Portuguese Saa de Miranda and Montemayor gave a more elevated character; the latter, in his pastoral romance Diana. More imbued with the spirit of Horace and Aristotle was the distinguished statesman Diego de Mendoza, the dreaded minister of Charles V., in Italy, and author of the comic romance *Lazarillo de Tormes*, who composed, upon the model of Sallust and Tacitus, his History of the Rebellion in Grenada. He wrote various songs, poetical epistles, and satirical pieces. In odes, in the new style, Herrera and Luis de Leon met with much success. The witty Castillejo was particularly inimical to this classic Italian school. All attempts to imitate the romantic epic of the Italians in Spanish literature failed; and, in fact, even the later attempts of the Spaniards in the epic have been unsuccessful, if we except the *Araucana* of Alonzo de Ercilla y Zuniga (about 1556), which celebrates the conquest of a brave tribe of American Indians. But the fairest flower of the Spanish Parnassus now opened. We mean its drama. The history of this, henceforth, embraces nearly all the history of Spanish poetry. The drama of Spain first became independent in the time of John II. It originally proceeded from the religious spectacles; and a great part of its productions has always remained of a religious character.

In connexion with the Spanish drama, the old Art of Poetry of Juan de Cueva is particularly deserving of attention. This drama does not recognize the Grecian distinction of comedy and tragedy, but its peculiar divisions are the *comedias divinas* and *comedias humanas*. The former have been divided, since Lope de Vega, into histories of the lives of the saints (*vidas de santos*); and *autos sacramentales*, plays which were performed upon Corpus Christi days, and had for their object the commemoration of the sacrament. The *comedias humanas* consist of three classes:—1. The heroic, more properly historical in their nature; 2. pieces of the cloak and the sword (*comedias de capa y espada*); drawn from high life, and full of the most complicated intrigue; 3. the *comedias de figuron*, in which vain adventurers or ladies play the chief parts. With these arose, too, the preludes (*loas*), and the interludes, mostly comic (*entremeses*), and usually accompanied with music and dancing (*saynetes*). If we estimate the modern dramatic art according to its true romantic character, we soon see that two nations have reached the highest excellence in it, each in its own way—the English in Shakspeare, and the Spanish in Lope de Vega and Calderon. The religious comedy is peculiar to the Spaniards; and Calderon's Devotion to the Cross proves of what elevation it is capable. This grave people, too, has produced the most original comedies; and its theatre has become a fund of comic intrigues for the writers of the rest of Europe. In the first half of the sixteenth century, after a learned party had attempted, without success, to imitate the Grecian and Roman drama, Torres Naharro appeared, and laid the foundation of true Spanish comedy; and Lope de Rueda, called, by Cervantes, the *great*, followed, with pieces in prose. The theatres of Spain at that time consisted, according to Cervantes, of some boards and benches; and the wardrobe of the actors, with the decorations, could be packed into a bag. From rude beginnings, among which we must not omit the two tragedies in the history of Ines de Castro, by the dominican Bermudez, the drama unfolded itself, until the time of Cervantes, the rival of Lope de Vega. Lope de Vega (born 1562) held the highest rank before the appearance of Calderon. In all the above-mentioned kinds of Spanish comedy, he obtained unbounded applause; and his celebrated plays, with the exception of the *autos*, and the preludes and interludes, fill alone twenty-five volumes. He possessed an inexhaustible power of inventing complicated intrigues, but wanted the highest kind of refinement. A crowd of imitators surrounded him (among whom we may mention Mira de Mescua); but the drama was carried to its highest perfection by the immortal Pedro Calderon de la Barca, who was born in 1660. He was the friend and poet of Philip IV., who had a great fondness for the stage, and wrote himself for it. (See *Calderon.*) His example also allured a swarm of imitators; but Solis, Moreto, Molina, Roxas de Castro, and others, should be mentioned with respect. With the monarchy sank the poetic standard. With the French race of sovereigns the French taste also was introduced into the Spanish theatre; and it was not till the second half of the eighteenth century that Vincente Garcia de la Huerta attempted to revive the old Spanish theatre. He published his *Teatro Espanol* (16 vols.) in 1785—a collection of the best old plays of Spain. Among the late tragic poets are De Moratin and Quintana; among the comic, Ramon de la Crucycano and Commella.

In one of the finest departments of works of fiction—the romance—Spain has accomplished much. The romance of chivalry early received a peculiar character in the *Amadis* (probably by Vasco Lobeira, in the fourteenth century), and flourished for a long time. Its principal productions we may best learn from the judgment passed on them by the curate and barber in Don Quixote. Diego de Mendoza, in his *Lazarillo de Tormes*, furnished the model of the romances of low life (*del gusto picaresco*), which afterwards became so numerous, and of which *Don Guzman de Alfarache*, by Mattheo Aleman (1599), is one of the most distinguished. A flood of other tales appeared about the same time, among which must be mentioned those of Timoneda and Perez de Montalvan. But the immortal Miguel de Cervantes Saavedra (born in 1547), in his Don Quixote, surpasses all his predecessors and followers. In this, Spanish prose found its perfection; and the work makes an epoch in the history of romance—a circumstance which would not have been so much overlooked had it not been customary to consider the knight of La Mancha only as a subject of jest, and to put out of sight the fact that the work affords the most vivid picture of human life. With the addition of the other works of Cervantes, the circle of poetic creation in Spain may be said to be completed. The continual decline of Spanish literature, with the decline of the state, has been already mentioned. The brothers Argensola, with the title of the Spanish Horaces, many writers of epic, pastoral and lyric poetry, of moderate merit, Espinel, Morales, the Figueroas, Sousa, Virues, Montalvan, can scarcely be distinguished above the increasing deluge. The usual appearances of a declining poetry and literature are observed here. The ingenious, but affected, Louis de Gongora de Argote (after 1600) soon carried a bombastic and strained mode of writing to a great height, and found many followers both in poetry and prose. Spain had, likewise, at this time, as Italy at an earlier period, her Marinists, or concettists, and a peculiar class, called *culturists*, who veiled their want of genius in turgidity and affectation. They were not, indeed, without opponents. The celebrated satirist Francis de Quevedo Villegas (at the beginning of the seventeenth century) bitterly assailed the Marinists; and he, as well as the Spanish Anacreon, Stephen Manuel de Villegas, upheld, in some measure, the old Spanish simplicity. But the time of decline had come; and the introduction of the French style, under the Bourbons, could only add to the degradation. In the department of criticism, we must mention the *Poetica* of Ignatius de Luzan (1737, folio,) the founder of the French school. In philosophy, theology, &c., nothing of importance is to be found; but the prose style has not been neglected. On the contrary, it has been cultivated in a peculiar manner in works relating to the history of the nation. The learned theologian Perez de Oliva, who died in 1533, much improved didactic prose; and his scholar and nephew, Ambrosio de Morales, the historiographer of Philip II., pursued the same course. Diego de Mendoza wrote, as we have already mentioned, a History of the War in Grenada, and Geronymo Zurita *Anales de la Corona de Aragon.* Antonio de Solis wrote, in the seventeenth century, an excellent work upon the conquest of Mexico; yet the Jesuit Mariana deserves, perhaps, to be called the most industrious Spanish historian. Lorenzo and Balthasar Gracian, the latter of whom, by his *Arte de Ingenio*, had an important influence on the Spanish literature of the seventeenth century, contributed to the introduction of Gongora's defects into the prose style. The ***Real Academia Espanola***, at Madrid, founded in 1713, deserves great praise for its *Diccionario de la real Academia*[*] (in 6 vols., folio), by which the Castilian dialect became the established language. Candamo, Zamora, Canizares, and the Mexican nun Inez de la Cruz, and some others, were distinguished as lyric poets in the eighteenth century. Jos. Lopez compiled a *Parnaso Espanol*, in 1768, drawn from the old lyric poets. Lately, Llorente has appeared as a historical and political writer; but his works have been produced out of his own country. The first historical romance that has come from the pen of a Spaniard, is in English, namely, Gomez Arias, or the Moors of Alpujarras, by Telesforo de Trueba y Cosio (3 vols., London, 1828). Anaya's Essay on Spanish Literature (London, 1818) gives a short account of Spanish literature. See, also, Bouterwek's *History of Spanish Literature*, which is contained in his *History of Modern Poetry and Eloquence*, and has been translated into Spanish, French and English. The events of the reigns of Charles IV. and Ferdinand VII. have created an excitement beneficial to Spanish literature. Jovellanos has written with talent and elegance, on legislation and political economy; Capmany has distinguished himself in philology; Antillon in geography; Llorente in the history of his country; Conde in Oriental literature; the canon Moralez in mathematics and general literature; and various others might be mentioned. Juan Melendez Valdez has been called the Spanish Anacreon. Badia is known for his Travels in the East, under the name of Ali Bey. We have mentioned, in the course of this article, *Coleccion de las mas celebres Romances antiguos Espanoles historicos y caballerescos* (edited by Depping, Leipsic, and by a Spaniard, London, 1825, 2 vols.; the Leipsic edition contains the Moorish ballads, which the London does not); there is also a *Coleccion de las Piezas dramaticas de los Autores Espanoles:* the first six volumes (Madrid, 1826) contain the best pieces of Calderon, Moreto, Tirso de Molina, Ruiz de Alarcon, and Perez de Montalban. Spain has now, besides the seminaries, fifteen universities. In these there were, in 1826, 9867 students, and in the seminaries 3810.

SPALLANZANI, Lazarus, an eminent naturalist, was born at Scandiano, in Italy, in 1729, and studied at Reggio and at Bologna, under Laura Bassi, the celebrated female professor of physics in that place. Being nominated professor of natural philosophy at Pavia, he devoted himself to experimental researches, which he pursued for many years with assiduity, and published, in Italian, various works on physiology, which made his name known through Europe. In 1779, he travelled through the Swiss cantons; in 1785, he made a voyage to Constantinople, Corfu and Cerigo, and, in 1788, journeyed through the Two Sicilies, and part of the Apennines, to collect volcanic products for the museum at Pavia. This celebrated natural philosopher died of apoplexy in 1799. Among the numerous writings of Spallanzani are Experiments on animal Re-production; On infusory Animalcules; On the Phenomena of Circulation; On animal and vegetable Physics; Travels in the Two Sicilies; On the Transpiration of Plants.

SPANDAU; a fortified town in Prussia, on the Havel, at its union with the Spree; eight miles west of Berlin; lon. 13° 11′ E.: lat. 52° 33′ N.; population, 4303. It is well fortified, and contains a large work-house and a manufactory of arms.

SPANGENBERG, Augustus Gottlieb, a Moravian bishop, was born at Klettenberg, in Germany, in 1704, became a student of law at Jena, and, in 1726, doctor of philosophy. The following year he formed an acquaintance with count Zinzendorff, founder of the sect of Moravians or Herrnhutters, of whom he became a follower, and was sent on a mission to the West Indies and North America (1735—1739). Having established a colony of the United Brethren (q. v.) in Georgia, and visited Pennsylvania, he returned to Europe. In 1744, he was elected bishop of the Moravians, and sent again to America as superintendent of all the establishments of the brethren among the English and savage nations. He returned from this mission in 1749, and in 1751, crossed the Atlantic a third time. On the death of Zinzendorff (q. v.), in 1760, he was called to the supreme council of the Herrnhutters, and, in 1764, was appointed general inspector of the establishments in Upper Lusatia. He took up his residence at Zeitz, whence, in 1769, he removed to Herrnhut, devoting his time especially to the seminaries for the education of foreign missionaries. In 1789, he became president of the general directory, and died at Bertholsdorf, near Herrnhut, in 1792. Among his works are the Life of Zinzendorff (in German, 1772—75, 8 vols., 8vo.); and *Idea Fidei Fratrum*, or a Summary of the Christian Doctrine of the Evangelical Community of the Brethren (1779, 8vo.), translated into English by Latrobe.

SPANHEIM, Ezekiel, a distinguished numismatist and philologian, son of Frederic Spanheim, a professor of divinity at Geneva and Leyden, was born at Geneva, in 1629, accompanied his father to Leyden in 1642, and, although at that period the animosity between Heinsius and Salmasius was at its height, succeeded, by his modesty and abilities, in obtaining the esteem of both those scholars. In 1651, he accepted a professorship of rhetoric in his native city; but, his reputation inducing the elector palatine to select him as superintendent of his son's studies, he entered the service of that prince, and soon after published a tract in support of his patron's pretensions to the grand vicarship of the empire. That prince despatched him as his envoy to Rome, where he became personally acquainted with his father's patroness, queen Christina, who afterwards employed him in diplomatic missions to the states-general, Breda, and London. Circumstances induced him to enter the service of the elector of Brandenburg, afterwards king of Prussia, who raised him to the order of nobility, while ambassador extraordinary at Paris. In 1702, he proceeded in the same capacity to London, where he died in 1710. His principal works are a Dissertation on the Excellence and Use of the Medals of the Ancients (folio, 2 vols.); Letters and Essays on Medals; a Commentary on the writings of Aristophanes and Callimachus; an edition of the writings of the emperor Julian, in Greek and Latin, and a French translation of the same work, illustrated by medals.

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[*] The most complete Spanish dictionary, for foreign students of the language, is the *Dictionnaire Espagnol-Francois et Francois-Espagnol*, by Nunez de Taboada (2 vols., Paris).

Frederic Spanheim, brother of Ezekiel, was born in 1631, at Geneva, studied at Leyden, and succeeded to the divinity chair at Heidelberg, in 1665, which he exchanged for that at Leyden in 1670. He was a voluminous writer, principally on theological subjects, and compiled an elaborate history of the Christian church. His death took place in 1701.

SPANIEL (*canis extrarius*, L.). The spaniel has the hair very long in parts; it is generally white, with large brown, liver-coloured or black spots, of irregular shape and size; the nose is sometimes cleft; the ears are very long and pendulous, and covered with long hair. This race came originally from Spain, whence its name. The setter is sometimes called the *English spaniel.* It corresponds, in every point, with the true spaniel, but is trained more particularly for field sports. The Alpine or St Bernard's variety of the spaniel breed exceeds all others in size and beauty. It is generally two feet high at the shoulders, and full six feet from the nose to the end of the tail. These dogs are sent out in couples to scour the mountain in search of lost or wearied travellers. They have frequently been of great use in this way.

The smaller spaniel, king Charles's dog (*canis brevipilis*, L.), is a small variety of the spaniel, used as a lap dog. It is sometimes found entirely black, and is then called, in England, *king Charles's dog*, from the liking of Charles II. for this variety.

The Maltese dog and the lion dog (*canis leoninus*, L.) are small species of spaniel. The first is supposed to have sprung from the intercourse of the little spaniel with the smaller water dog. It has the hair, all over the body, very long and silky, and generally pure white. The other has long silky hair about the head, neck, shoulders, and extremity of the tail; but, on the other part, short, giving the little animal a leonine appearance. It is probably bred between the little spaniel and one of the naked varieties.

The great water spaniel (*canis aquaticus*, L.) is supposed to be the offspring of the great water dog and the little spaniel. It is very much like the former animal, but the curly hair is more silky, and like that of the land spaniel. There is also a useful variety of this breed between the water spaniel and the shepherd's dog. These animals are used to find water-fowl, shot over water.

SPANISH FLY. See *Cantharides.*

SPANISH MAIN; the Atlantic ocean and coast along the north part of South America, from the Leeward islands to the isthmus of Darien.

SPANISH SUCCESSION, WAR OF THE. See *Spain*, and *Utrecht.*

SPAR. See *Barytes*, *Corundum*, *Fluor*, and *Lime.*

SPARRMAN, ANDREW, a Swedish naturalist and traveller, was born about 1747, and studied medicine at Upsal. His attention to natural history attracted the notice of Linnæus. In 1765, he made a voyage to China. On his return, he described the animals and vegetables which he had discovered; and, to continue his researches, went to the cape of Good Hope in 1772. Doctor Forster and his son visiting the cape with captain Cook, he joined them in the voyage round the world, and returned, in 1775, to Africa, undertook a journey into the interior; and, after penetrating to the distance of 350 leagues from the cape, he returned to that settlement in April, 1776, bringing a copious collection of African plants and animals. The same year he returned to his native country. In 1787, he engaged in an abortive attempt to explore the interior of Africa, and returned home in 1788. He died at Stockholm, July 20, 1820. He was the author of several works, among which is an Account of his Voyage to the Cape of Good Hope, and Travels in Africa, written in Swedish, and published in German at Berlin, and in English at London, 1785 (2 vols., 4to.).

SPARROW, OR FINCH (*fringilla*). The common European sparrow is almost domesticated in this portion of the globe, frequenting the habitations of man, even in the midst of populous cities, and nestling under the eaves of houses, in holes in the walls, in pots placed for their use, &c. It is of a robust form, and has a stouter bill than the majority of the finches. It is found almost throughout the Eastern continent, supporting equally well severe cold and extreme heats. It is inconveniently familiar, and its incessant and monotonous note is fatiguing to the ear. In many districts it is so numerous as to do great injury to the grain fields. Its voracity is extreme; neither can its flesh or plumage be applied to any useful purpose. Fortunately for America, they are free from this pest on that side of the Atlantic. They have, in its place, the chipping sparrow, a delicate bird, almost as familiar, but nowise obtrusive. They have, besides, numerous species of finch, which are readily distinguished from other small birds, by the short, conical bill, with cutting edges, which seems peculiarly adapted to the purpose of freeing seeds of the hulls—an operation which these birds accomplish with great adroitness. Though granivorous, they feed their young on worms and soft insects only.

SPARROW-HAWK, AMERICAN (*falco sparverius*, L.). This beautifully marked bird appears to reside principally in the warmer parts of the United States. It is particularly abundant, in the winter, throughout South Carolina, Alabama, Georgia and Florida, whither the birds assemble from the remote interior of the Northern States, wandering, in summer, as far as the Rocky mountains. They do not seem to visit the maritime districts of New England. They are found in the West Indies, also south of the equator, even in Cayenne and Paraguay. The nest is built in a hollow, shattered or decayed tree, at a considerable elevation. The eggs are said to be four or five, of a light brownish-yellow, and spotted with brown. The food of this bird is sparrows and other small birds, also mice, grasshoppers and lizards. The female is eleven inches long; the stretch of the wings twenty-three inches. The male is about nine and a half or ten inches long. The cere and legs are yellow; the head bluish-ash; crown rufous. The upper parts are reddish-bay, striped transversely with dusky brown; the lower parts pale yellowish-white, marked with longitudinal spots of brown; the claws black.—The European sparrow-hawk, is a short-winged hawk which destroys many pigeons and partridges.

SPARRY IRON. See *Iron, Ores of.*

SPARTA, OR LACEDÆMON, one of the most powerful states of ancient Greece, called also *Laconia*, lay to the east of Messenia in the Peloponnesus. The Eurotas here empties into the gulf of Laconia, the western shore which terminates in cape Tænarus (Matapan). Here, near the town of Tænarus was pointed out a cave, which was said to be the entrance to the regions of Pluto. At Amyclæ, near Sparta, stood one of the most celebrated temples of Apollo. According to fable, Lacedæmon, son of Jupiter, and of the nymph Taygeta, married Sparta, daughter of Eurotas, king of the Leleges, succeeded his father-in-law on the throne, and gave the country his own name, calling the city by that of his wife. He was probably a Hellenic prince, and one of the leaders of the Achæan colony, which Archander and Architeles led into Laconia, after their expulsion from Phthiotis. Here Lacedæmon, having persuaded the natives to receive the colony, gave his own name to the united people. Among the most celebrated of the early kings was Tyndarus, with whose sons Castor and Pollux the male line of Lacedæmon became extinct. Menelaus, between whom and Lacedæmon five kings had reigned, married Helen the daughter of Tyndarus, and thus acquired the throne. Orestes, son of Agamemnon, who had married Hermione, the daughter of Menelaus, united Argos and Mycenæ with Lacedæmon. In the reign of his son and successor Tisamenes, it was conquered by the Heraclidæ about 1080, who established a dyarchy or double dynasty of two kings in Sparta. For, as neither the mother nor the Delphic oracle could decide which of the twin sons of Aristodemus, Eurysthenes and Procles, was first born, the province of Laconia was assigned to them in common; and it was determined that the descendants of both should succeed them. The Lacedæmonians, however, had little cause to rejoice at the arrival of the foreigners, whose fierce disputes, under seven rulers of both houses, distracted the country with civil feuds, while it was, at the same time, involved in constant wars with its neighbours, particularly the Argives. The royal authority was continually becoming feebler, and the popular power was increased by these divisions, until the government ended in an ochlocracy. At this time, Lycurgus was born, for the healing of the troubles. He was the only man in whom all parties confided; and, under the auspices of the gods whose oracle he consulted, he established a new constitution of government in Sparta (about 880 B. C.) and thus became the saviour of his country. (See *Lycurgus.*) Lacedæmon now acquired new vigour, which was manifested in her wars against her neighbours, particularly in the two long Messenian wars, which resulted in the subjugation of the Messenians (B. C. 668). The battle of Thermopylæ (B. C. 480), in which the Spartan king Leonidas, successfully resisted the Persian forces at the head of a small body of his countrymen, gave Sparta so much distinction among the Grecian states, that even Athens consented to yield the command of the confederated forces, by land and sea, to the Spartans. Pausanias, guardian of the infant son of Leonidas, gained the celebrated victory of Platææ over the Persians (B. C. 479), at the head of the allies. On the same day, the Grecian army and fleet, under the command of the Spartan king Leotychides, and the Athenian general Xanthippus, defeated the Persians, by land and sea, near Mycale. With the rise of the political importance of Sparta, the social organization of the nation was developed. The power of the kings was gradually limited, while that of the ephori was increased. After the Persians had been victoriously repelled, the Grecian states, having acquired warlike habits, carried on hostilities against each other. The jealousy of Sparta towards Athens rose to such a height that the Lacedæmonians, under pretence that the Persians, in case of a renewal of the war, would find a tenable position in Athens, opposed the rebuilding of its walls, and the fortification of the Piræus. Themistocles, discerning the real grounds of this proceeding, baffled the designs of Sparta by a stratagem, and thus contributed to increase the ill will of that state towards Athens. The tyrannical conduct of Pausanias alienated the other allies from Sparta; and most of them submitted to the command of Athens. But, while Sparta was learning moderation, Athens became so arrogant towards the confederates, that they again attached themselves to the former power, which now began to make preparations in secret for a new struggle. The Athenians, however, formally renounced the friendship of Sparta, and began hostilities (B. C. 431). This war, the Peloponnesian, ended in the ascendency of Sparta, and the entire humiliation of her rival (405). The rivalry of the Spartan general Lysander and the king Pausanias soon after produced a revolution, which delivered the Athenians from the Spartan yoke. The Spartans next became involved in a war with Persia, by joining Cyrus the Younger in his rebellion against his brother Artaxerxes Mnemon. The Persian throne was shaken by the victories of Agesilaus; but Athens, Thebes, Corinth, and some of the Peloponnesian states, were instigated by Persian gold to declare war against the Lacedæmonians, who found it necessary to recall Agesilaus. The latter defeated the Thebans at Coronæa; but, on the other hand, the Athenian commander, Conon, gained a victory over the Spartan fleet at Cnidus, and took fifty galleys. This war, known as the Bœotian or Corinthian war, lasted eight years, and increased the reputation and power of Athens, by the successes of her admiral, Conon, and her fortunate expeditions against the Spartan coasts and the islands of the Ægean. The arrogance of Athens again involved her in hostilities with Persia; and Antalcidas (B. C. 388) concluded the peace which bears his name, and which, though highly advantageous to Persia, delivered Sparta from her enemies. The ambitious designs of Sparta in concluding this peace soon became apparent: she continued to oppress her allies, and to sow dissensions in every quarter, that she might have an opportunity of acting as umpire. Besides other outrages, she occupied, without provocation, the city of Thebes, and introduced an aristocratical constitution there. Pelopidas delivered Thebes, and the celebrated Theban war followed, in which Athens took part, at first against Sparta, but afterwards in her favour. The latter was so much enfeebled by the war, that she thenceforward ceased to act a distinguished part in Greece. No state was strong enough to take the lead, and the Macedonian king Philip at last made himself master of all Greece. Agis, king of Sparta, one of the bravest and noblest of its princes, ventured to maintain a struggle for the liberties of Greece; but he lost his life in the battle of Megalopolis against Antipater. Archidamus IV. was attacked by Demetrius Poliorcetes, and Sparta was saved with difficulty. New troubles soon arose: Cleonymus, nephew of the king Areus, invited Pyrrhus into the country in aid of his ambitious projects, which were frustrated, partly by the negligence of Pyrrhus, and partly by the courage of the Spartans. Luxury and licentiousness were continually growing more and more prevalent, and, though several succeeding kings attempted to restore the constitution of Lycurgus, and restrain the power of the ephori, it was without success. Cleomenes, indeed, accomplished a reform; but it was not permanent. After an obstinate and unfortunate war against the Achæans and Antigonus, king of Macedonia, Cleomenes fled to Egypt, where he died. The state remained three years without a head, and was then ruled by the tyrants Machanidas and Nabis, by the latter of whom the most atrocious cruelties were committed. The Romans and the Achæan league effected the final fall of the state, which had been upheld for a short time by Nabis. Sparta was obliged to join the Achæan league, with which it afterwards passed under the dominion of the Romans.

Sparta, or Lacedæmon, the capital of Laconia and of the Spartan state, lay on the west bank of the river Eurotas, and embraced a circuit of forty-eight stadia, or six miles. The ruins are still seen nearly a league to the east of Misitra, and are known by the name of *Palæopolis* (Ancient City). Sparta was irregularly built, and consisted of five separate quarters, which, as late as the 120th Olympiad, were not enclosed by any common wall. Among other remarkable objects enumerated by Pausanius are the following: the market-place (ἀγορα), containing the public buildings, in which the most distinguished magistrates held their meetings, and the principal ornament of which was the *Persice*, a celebrated colonnade, built from the spoils taken from the Persians; its roof was supported by statues of Persians; the *chorus*, or place in which the ephebi executed their dances, in the gymnopædia, adorned with statues of Apollo, Diana, and Latona; the *Baroneta*, or residence of the kings of the family of Eurysthenes, in the street Aphetai, so called because the people bought it of the widow of Polydorus for a herd of cattle: the *Leschai*, or halls in which the popular assemblies were held, and of which there were two, the *Lesche* of the Crotanes, near the tombs of the Agides, and the *Lesche Pœcile*: the temple of Minerva Poliouchos (Chalciœca), on the Acropolis, &c.

The Spartans were distinguished among the people of Greece by their manners, customs, and constitution. Their kings ruled only through the popular will, as they had no other privileges than those of giving their opinion first in the popular assemblies, acting as umpires in disputes, and of commanding the army; their only other advantages were a considerable landed estate, a large share of the spoils, and the chief seats in assemblies and at meals. The Spartans, that is, the descendants of the Dorians, who acquired possession of Laconia under the Heraclidæ, were occupied only with war and the chase, and left the agricultural labours to the Helots; but the Lacedæmonians, or Periœci (the ancient inhabitants of the country), engaged in commerce, navigation, and manufactures. Although the Spartan conquerors were superior in refinement and cultivation to the Lacedæmonians, the arts of industry flourished only among the latter. They gradually intermingled with the Spartans, whom they exceeded in number, and formed one people. Herodotus states the number of Spartans at only 8000. Both people constituted one state, with a national assembly, to which the towns sent deputies. The military contributions in money and troops formed the principal tribute of the free Lacedæmonians to the Spartans (Dorians). The former were sometimes divided by jealousy from the latter, and in the Theban war, several towns withdrew their troops from the Spartans, and joined Epaminondas. The distinguishing traits of the Spartans were severity, resolution, and perseverance. Defeat and reverse never discouraged them. But they were faithless and crafty, as appears from their conduct in the Messenian wars, in which they not only bribed the Arcadian king, Aristocrates, to the basest treachery towards the Messenians, but also corrupted the Delphic oracle, of which they made use to the prejudice of the Messenians. The age at which marriage might be contracted was fixed by Lycurgus at thirty for men and twenty for women. When a Spartan woman was pregnant, it was required that pictures of the handsomest young men should be hung up in her chamber, for the purpose of producing a favourable effect on the fruit of her womb. The child was brought forth, it is said, upon a shield, and, if a male, was laid, without swaddling clothes (to leave him the free use of his limbs), in a shield, with the words Α ταν ἀ επι ταν (Either with this or upon this). The other Greeks washed the new-born infants with water, and afterwards rubbed them over with oil; but the Spartans bathed them in wine, to try the strength of their constitutions. They had a notion that a wine bath produced convulsions or even death in weakly children, but confirmed the health of the strong. If the infant proved vigorous and sound, the state received it into the number of citizens; otherwise it was thrown into a cave on mount Taygetus. In the other Grecian states, the exposition of children was a matter of custom: in Sparta it was forbidden by law. If we may trust to Homer, it was at an early period, a custom among the Spartan women to employ nurses in order to preserve the beauty of their breasts. The nurses were treated as part of the family. The Spartan children were early inured to hardships and accustomed to freedom. Stays, which were in use among the other Grecians, were unknown to the Spartans. To accustom the children to endure hunger, they gave them but little food; and, if they stood in need of more, they were obliged to steal it; and, if discovered, they were severely punished, not for the theft, but for their awkwardness. Every ten days, they were required to present themselves before the ephori, and whoever was found to be too fat, received a flogging. Wine was not generally given to girls in Greece, but was commonly allowed to boys from earliest childhood. In Sparta, the boys were obliged to wear the hair short, until they attained the age of manhood, when it was suffered to grow. They usually ran naked, and were generally dirty, as they did not bathe and anoint themselves, like the other Greeks. They took pride in having the body covered with marks of bruises and wounds. They wore no outer garment, except in bad weather, and no shoes at any time. They were obliged to make their beds of rushes from the Eurotas. Till the seventh year, the child was kept in the gynæceum, under the care of the women; from that age to the eighteenth year, they were called *boys* (πρωτηρεις), and thence to the age of thirty, *youths* (ἰφηβοι) In the thirtieth year the Spartan entered the period of manhood, and enjoyed the full rights of a citizen. At the age of seven, the boy was withdrawn from the paternal care, and educated under the public eye, in company with others of the same age, without distinction of rank or fortune. If any person withheld his son from the care of the state, he forfeited his civil rights. The principal object of attention, during the periods of boyhood and youth, was the physical education, which consisted in the practice of various gymnastic exercises—running, leaping, throwing the discus, wrestling, boxing, the chase, and the *pancratium.* These exercises were performed naked, in certain buildings called *gymnasia.* Besides gymnastics, dancing and the military exercises were practised. A singular custom was the flogging of boys (*diamastigosis*) on the annual festival of Diana Orthia, for the purpose of inuring them to bear pain with firmness: the priestess stood by with a small, light, wooden image of Diana, and if she observed that any boy was spared, she called out that the image of the goddess was so heavy, that she could not support it, and the blows were then redoubled. The men who were present exhorted their sons to fortitude, while the boys endeavoured to surpass each other in firmness. Whoever uttered the least cry during the scourging, which was so severe as sometimes to prove fatal, was considered as disgraced, while he who bore it without shrinking was crowned, and received the praises of the whole city. According to some, this usage was established by Lycurgus; others refer it to the period of the battle of Platææ. To teach the youth cunning, vigilance, and activity, they were encouraged, as has been already mentioned, to practise theft in certain cases; but if detected, they were flogged, or obliged to go without food, or compelled to dance round an altar, singing songs in ridicule of themselves. The fear of the shame of being discovered sometimes led to the most extraordinary acts. Thus it is related that a boy who had stolen a young fox, and concealed it under his clothes, suffered it to gnaw out his bowels, rather than reveal the theft by suffering the fox to escape. Swimming was considered among the Spartans to be so indispensable, that it was a proverb among them, to intimate that a man was good for nothing—He cannot even swim. Modesty of deportment was also particularly attended to; and conciseness of language was so much studied, that the term *laconic* is employed to signify a short, pithy manner of speaking. The Spartans were the only people of Greece who avowedly despised learning, and excluded it from the education of youth. Their whole instruction consisted in learning obedience to their superiors, the endurance of all hardships, and to conquer or die in war. The youth were, however, carefully instructed in a knowledge of the laws, which, not being reduced to writing, were taught orally. The education of the females was entirely different from that of the Athenians. Instead of remaining at home, as in Athens, spinning, &c., they danced in public, wrestled with each other, ran on the course, threw the discus, &c. This was not only done in public, but in a half-naked state. The object of this training of the women was to give a vigorous constitution to their children.—See Müller's *History and Antiquities of the Doric Race*, translated, with additions, from the German (London, 1830). The Mainots have been supposed to be the descendants of the ancient Spartans. See *Mainots.*

SPARTACUS; a Thracian gladiator, the instigator of the servile war or revolt of the slaves in Italy. He had been compelled, like other barbarians, to serve in the Roman army, from which he had deserted, and, at the head of a body of chosen companions, had carried on a partisan war against the conquerors. Being made prisoner, Spartacus was sold as a slave; and his strength and size caused him to be reserved as a gladiator. He was placed in a gladiatorial school at Capua, with two hundred other Thracian, German and Gaulish slaves, among whom a conspiracy was formed (B. C. 71) for effecting their escape. Their plot was discovered; but a small body, under Spartacus, broke out, and, having procured arms, and gained some advantages over the Roman forces sent against them, they were soon joined by the slaves and peasantry of the neighbourhood, and their numbers amounted to 10,000 men. By the courage and skill of Spartacus, several considerable battles were gained; but his authority was insufficient to restrain the ferocity and licentiousness of his followers, and the cities of the south of Italy were pillaged with the most revolting atrocities. In a few months, Spartacus found himself at the head of 60,000 men; and the consuls were now sent, with two legions, against the revolted slaves. Mutual jealousies divided the leaders of the latter, and the Gauls and Germans formed a separate body under their own leaders, while the Thracians and Lucanians adhered to Spartacus. The former were defeated; but Spartacus skilfully covered their retreat, and successively defeated the two consuls. Flushed with success, his followers demanded to be led against Rome; and the city trembled before the servile forces. In this crisis, Licinius Crassus, who was afterwards a triumvir, was placed at the head of the army. His lieutenant, Mummius, whom he despatched with two legions to watch the motions of the enemy, was defeated by a superior force, and slain. Crassus, after having made an example of the defeated legions, by executing every tenth man, surrounded Spartacus, near Rhegium, with a ditch six miles in length. Spartacus broke through the enemy by night; but Crassus, who did not doubt that he would march upon Rome, pursued him, and defeated a considerable part of his forces, who had abandoned their general from disaffection. Spartacus now retreated; but his followers compelled him to lead them against the Romans. His soldiers fought with a courage deserving success; but they were overcome, after an obstinate conflict, and Spartacus himself fell fighting on his knees, upon a heap of his slain enemies. According to the Roman statements, 60,000 rebels fell in this battle (A. D. 71), 6000 were made prisoners, and crucified on the Appian way. A considerable number escaped, and continued the war, but were finally destroyed by Pompey.

SPASMODIC CHOLERA. See *Cholera.*

SPAWNING OF FISH. In the oviparous fishes, with distinct sexes, the eggs are impregnated externally, and arrive at maturity without the aid of the mother. The spawn being deposited by the female, the male then pours upon it the impregnating fluid. In the ovoviviparous fishes, sexual intercourse takes place, and the eggs are hatched in the uterus. In the oviparous fishes, which are hermaphrodite, the spawn is impregnated previous to deposition by the same individual which deposits the eggs. Fishes exhibit a great variety in regard to the number of their eggs. In some, the number is small; while in the spawn of a codfish 3,686,760 eggs have been found; in that of the flounder, 1,357,400, and in that of the mackerel, 546,681. The season of spawning varies according to the species and even the habits of the individual. In general, before spawning, fish forsake the deep water, and approach the shore, that, the roe, being placed in shallow water, may be vivified by the influence of the solar ray. At that season, some fish forsake the salt water, and ascend the rivers, and, after spawning, return again to the ocean. The eggs of various species of fish are used as articles of food, sometimes in a recent state, and sometimes salted, as in the well-known article of trade, caviar.

SPEAKER. The lord-chancellor is, *ex-officio*, the speaker of the British house of lords, and may, if a lord of parliament, as in practice is always the case, give his opinion and argue any question before the house. The speaker of the house of commons is a member of the house, elected by a majority of the votes, to act as chairman or president in putting questions, reading briefs or bills, keeping order, reprimanding the refractory, adjourning the house, &c. The first thing done by the commons, upon the meeting of a parliament, is to choose a speaker, who is to be approved of by the king, and who, upon his admission, begs his majesty that the commons, during their sitting, may have free access to his majesty, freedom of speech in their own house, and security from arrests. The speaker is not allowed to persuade or dissuade in passing a bill, except in committee, but only to make a short and plain narrative; nor to vote, unless the house be equally divided, when he has a casting vote. He receives a salary of £6000 a year. (See *Parliament.*) The presiding officer of the French chamber of deputies is styled *président*, and is chosen by the chamber itself. The chancellor of France presides in the house of peers. In the senate of the United States of America, the presiding officer is styled *president*; and the constitution (i. 3.) provides that the vice-president shall be president of the senate, and shall have no vote, unless the votes of the senators are equally divided. In his absence, or in case he exercises the office of president of the United States, the senate chooses a president *pro tempore.* The speaker of the house of representatives is chosen (*Const.* i. 2.) by the house itself.

SPECIFIC GRAVITY. See *Gravity.*

SPECIFICS, in medicine; such articles in the *materia medica* as have the special power of curing particular diseases in all persons and under all circumstances. Multitudes of such medicines are continually announced by quacks: but men of science and sense do not now believe in the existence of any specific, in the full sense of the word. Peruvian bark was formerly supposed to be a certain cure for intermittents and agues; but it is now known to fail in many cases, and not to be more efficacious than some other tonic medicines. The two medicines which approach nearest the character of specifics, are sulphur as an antidote to the itch, and mercury to venereal poison. Yet there are cases of disease not distinguishable from lues venerea, which are cured without the aid of mercury; and the power of sulphur in curing the itch is considerably augmented by the addition of other substances.

SPECTACLES are of two sorts, according as they are intended to assist short-sighted or far-sighted persons. In the former case they must be concave, in the latter convex; concave to diminish the excessive refraction of the rays of light by the humours of the eye, convex to increase the refraction. In both cases care should be taken to adapt the degree of concavity or convexity to the condition of the eye; for since the eye gradually accustoms itself to glasses continually used, the defect in the vision will be increased by the use of such as are too powerful, while it may be diminished, or, at least, prevented from increasing, by those of an opposite character. In addition to this, it ought to be considered, that, with most persons, the field of vision in one eye is greater than that in the other. But if a person, in the selection of spectacles, suffers himself to be guided merely by the first impression, he will commonly choose glasses that are too powerful, and seldom be able to adapt them to both eyes. Opticians have a contrivance for determining the degree of short or far sightedness, and the glasses are numbered according to their degree of convexity or concavity, so that suitable ones may be more readily selected. Those persons who are far-sighted should refrain, as long as they conveniently can, from increasing the power of the glasses. To afford the means of seeing distinctly, and to be used without injury, spectacles should be regularly formed; that is to say, the concavity or convexity should be uniform. Moreover, the glasses should be perfectly transparent, and entirely destitute of colour. Green spectacles are to be recommended only to such persons as have very sensitive eyes, or to such as are exposed for a long time to a glittering white surface (for instance, snow in bright sunshine). Spectacles are also used to cure squinting. These have no glasses, but consist merely of a thin plate of some substance. In the middle, opposite the axis of the eye, there is a small opening, to which the pupil must turn, in order to see any thing. In this way it gradually becomes accustomed to the proper direction. The ancient Greeks and Romans were entirely unacquainted with the use of spectacles. In the twelfth century, we find a discovery mentioned by an Arabic writer, Alhazen, which might have led to the invention of spectacles. At the close of the thirteenth century, Roger Bacon speaks of them. The common spectacles must have been invented early (1280—1311). In Germany, a kind of spectacles were known in 1270. For further information, see the article *Optics.*

SPECTRUM, PRISMATIC. See *Colours, Doctrine of;* also *Optics.*

SPEECH, ORGANS OF. See *Voice.*

SPELMAN, SIR HENRY, a celebrated English antiquary and philologist, born in 1562, was sent, at the age of fifteen, to Trinity college, Cambridge, and entered as a law student at Lincoln's Inn; but he seems to have paid little attention to legal science at this period, and within three years he settled on his estate in the country. At length embarrassments, partly arising from a numerous family, aroused him to the exertion of his talents. He went to Ireland in 1607, as member of a board of commissioners for settling the titles to lands and manors in that kingdom; and he was afterwards employed to investigate the subject of the exaction of fees by the civil and ecclesiastical courts. On this occasion, he drew up his treatise *De Sepultura*, in which he demonstrates the flagrant abuses which had occurred to his notice. His services were rewarded with the honour of knighthood. In 1612, he settled in London, devoting his leisure to the study of the juridical antiquities of his native country. Having purchased the lands which had belonged to two suppressed monasteries, and meeting with obstacles to the quiet enjoyment of the property, he began to entertain scruples of conscience relative to the alienation of church lands, and wrote on the subject his work entitled *De non temerandis Ecclesiis.* On the revival of the society of antiquaries in 1614, Sir H. Spelman became a member, and produced a Discourse concerning the Original of the four Law-terms of the Year. In his researches into legal archæology, he found it necessary to study the Saxon language; and this led to the composition of his great work, the Archæological Glossary. He printed a specimen in 1621, and in 1626 appeared the first part, entitled *Archæologus in Modum Glossarii ad Rem Antiquam posteriorem* (folio). Before he had completed the glossary, he engaged in preparing a History of English Councils, of which the first part, to the Norman conquest, appeared in 1639; and two additional volumes were subsequently published, partly from the papers of Spelman, by Sir W. Dugdale. In 1639, likewise, appeared his last work, entitled the History of Tenures by Knights' Service in England. His death took place in 1641, and his body was interred in Westminster abbey. Besides the works already noticed, he was the author of a History of the Civil Affairs of the Kingdom from the conquest to the Grant of the Magna Charta; a Treatise concerning Tithes; a History of Sacrilege; Aspilogia; &c. His English works were published, collectively in a folio volume, in 1727.

SPELTER. See *Solder.*

SPENCE, Joseph, a critic, was born in 1698, and received his education at Oxford, where he obtained a fellowship. In 1727 appeared his Essay on Pope's Translation of the Odyssey, which led to an intimate friendship with the poet. In 1728, he was elected professor of poetry at Oxford; and he afterwards travelled abroad with the earl of Lincoln. On his return, he obtained a living in Buckinghamshire, and, in 1754, was promoted to a prebendal stall in Durham cathedral. After the death of his friend, Mr Rudge, in 1763, he resided much with the widow of that gentleman, who usually spent the summer months at Weybridge, in Surrey. On the morning of August 20, 1768, Mr Spence was found, by a servant, lying on his face in a shallow piece of water, into which it appeared that he had fallen, and, being unable to extricate himself, he was unfortunately drowned. His principal work is entitled *Polymetis*, or an Enquiry into the Agreement between the Works of the Roman Poets and the Remains of ancient Artists (1747, fol.). In 1819 appeared Anecdotes, and Characters of Books and Men, collected from the Conversations of Mr Pope, and of other Persons, from a manuscript of Mr Spence, with his life, &c. by S. W. Singer (8vo.).

SPENCER, George John, earl, was of the second branch of the Spencer family, the elder possessing the title of duke of Marlborough. His father, in 1761, was created baron Spencer, and, in 1764, viscount Althorpe and earl Spencer. George John was born in 1758, and was educated at Harrow, and afterwards had for his tutor the celebrated Sir William Jones. From Harrow he removed to Trinity college, Cambridge. When he had completed his éducation, he travelled, and on his return was elected member of parliament for the county of Northampton. In 1789, by his father's death, he became earl Spencer. In the house of lords, he voted with the whigs, till the period of the French revolution, when, with some others of the party, he joined the administration, and held the place of first lord of the admiralty. In 1801, he retired with Mr Pitt, but afterwards again joined his old friends, and, when they came into place, in 1805, he was appointed secretary of state for the home department. He died at his seat of Althorp, in Northamptonshire, on the 10th November, 1834. Earl Spencer was one of the principal members of the Roxburgh club, and possessed the largest and richest private library in the world: the foundation of it was laid in 1789, by the purchase of count Rewiczki's collection, for an annuity of £500 sterling. This he increased, at a great expense, by collecting books in all parts of Europe. The greater part of the library is at Althorp, and consists of 45,000 volumes: the rest is at London. A catalogue of the rarest and most costly works of the collection has been prepared by Dibdin—*Bibliotheca Spenceriana*, or a descriptive Catalogue of the Books printed in the fifteenth century, and of many valuable first Editions (4 vols., 1814). It contains engravings, wood cuts and fac similes illustrative of 1004 incunabula.—Earl Spencer's eldest son, John Charles, known as viscount Althorp, chancellor of the exchequer, during the period in which the Reform Bill was enacted, and therefore ministerial leader in the house of commons, was born in 1782, educated at Cambridge, entered parliament in 1803, was one of the lords of the treasury during Fox's short administration (1806), and was soon after returned for Northamptonshire, which he continued to represent until, by the death of his father, he became earl Spencer, and was removed to the house of peers.

SPENER, Philip Jacob, a celebrated divine of the Lutheran church in the seventeenth century, was born in 1635, at Rappolsweiler, in Upper Alsace. His piety was early awakened by his patroness, the countess of Rappolstein, and was confirmed by witnessing, at the age of fourteen years, her preparation for death. In 1651, he commenced his theological studies at Strasburg, became, in 1654, tutor of the princess of the Palatinate, and delivered lectures on philosophy and history. From 1659 to 1662, he travelled in Germany, Switzerland and France, where he became acquainted with the Jesuit Menestrier, celebrated for his knowledge of heraldry, and, having been thus led to study this science, wrote several works on heraldry, still much esteemed. In 1664, he was made doctor of theology at Strasburg, and, in 1666, he received the first place among the clergy at Frankfort on the Maine. His practical sermons, which deviated entirely from the dogmatico-polemic method then universal, were received with much applause. In 1670, he instituted his celebrated *collegia pietatis*, which, against his will, became the origin of *pietism.* From this time, Spener's history is wholly connected with this remarkable change in the religious state of Protestant Germany, as it was chiefly owing to his example and the spirit of his writings. The Lutheran church, at that time, was fast sinking into a lifeless dogmatism. Doctrines, forms and polemics were confounded with a religious life. Spener, in his *Pia Desideria* and other treatises, exposed the evils of this state of things, and showed how the important office of the ministry had become alienated from its proper purpose—that of instructing the people in true religion, correcting their faults, and alleviating their afflictions. He was violently opposed by the clergy, who reproached him with not making any difference between practical and theoretical theology. But posterity acknowledges his services in the restoration of catechetical instruction, which had been almost entirely forgotten. From 1686 to 1691, he was preacher to the court in Dresden, and even then occupied himself with the religious teaching of children. A representation which he made to the elector in writing, respecting his faults, brought him into disgrace. He went, in 1691, to Berlin, where he took an active part in the foundation of the university of Halle. In 1698, the court of Dresden invited him to return; but he preferred to remain in Berlin, where he was in the possession of high appointments. He died in that city, in 1705. In his letters, reports, opinions, &c., a truly Christian benevolence and zeal for the cause of goodness is perceptible. Spener may be compared with Fenelon.

SPENSER, Edmund, a celebrated English poet, was born in London, near the Tower, about 1553. It is not known where he received his early education, but he was admitted as a sizar of Pembroke hall, Cambridge, in 1569, and graduated M. A. in 1576. On leaving the university, he took up his residence with some relations in the north of England, probably as a tutor, where he unsuccessfully wooed a lady, whom he records in his Shepherd's Calendar, under the name of Rosaline, which was his first publication, and appeared in 1576. The year preceding, he had been advised by his friend Gabriel Harvey to remove to London, where he was introduced to Sir Philip Sidney, to whom he dedicated the Shepherd's Calendar. In 1580, he accompanied lord Grey de Wilton, lord lieutenant of Ireland, as his secretary. He returned, in 1582, with lord Grey, who, in conjunction with the earl of Leicester and Sir Philip Sidney, procured for him, in 1586, a grant of 3028 acres in the county of Cork, out of the forfeited lands of the earl of Desmond; on which, however, by the terms of the gift, he was obliged to become resident. He accordingly fixed his residence at Kilcolman, in the county of Cork, where he was visited by Sir Walter Raleigh, who became his patron in lieu of Sir Philip Sidney, then deceased, and whom he celebrates under the title of the Shepherd of the Ocean. He was then engaged in the composition of the Faery Queen, of which he had written the first three books. With these he accompanied Raleigh, the next year, to England, where they were published, with a dedication to queen Elizabeth, and an introductory letter to Raleigh, explaining the nature of the poem. Raleigh also gained him the favour of the queen, who rewarded his poetry and dedication with a pension of fifty pounds per annum. In 1591, he returned to Ireland; and, the succeeding year, his rising reputation induced his bookseller to collect and print his smaller pieces. He then passed an interval of two or three years in Ireland, where, in 1594, he married, being then in his forty-first year. His happiness was disquieted by the disturbances excited by the earl of Tyrone, which were probably the cause of his revisiting England the following year. Here he printed some poems, and drew up his View of the State of Ireland; which, in consequence, it is supposed, of the severity of some of its suggestions, lay in MS. until printed, in 1633, by Sir James Ware, who bestows much applause on the information and judgment displayed in it. In 1596, he published a new edition of his Faery Queen, with three additional books. Of the remaining six, which were to complete the original design, two imperfect cantos of Mutabilitie only have been recovered, which were introduced into the folio edition of 1609, as a part of the lost book, entitled the Legend of Constancy. There has been much controversy in respect to the presumed loss of the remainder of these six books on the poet's flight from Ireland: the most probable conclusion, from the investigation, is, that they were never finished, but that some parts of them were lost on that melancholy occasion. In 1597, he returned to Ireland, and, in September, 1598, was recommended to be sheriff of Cork. The rebellion of Tyrone, however, took place in October, and with such fury as to compel Spenser and his family to quit Kilcolman in so much confusion that an infant child was left behind, and burnt with his house. The unfortunate poet arrived in England with a heart broken by these misfortunes, and died the 16th of the following January, 1599, in the forty-sixth year of his age. It is asserted that he terminated his life in great distress; but it has been contended that the poverty referred to by Camden and several of his poetical contemporaries, applies rather to his loss of property generally than to absolute personal suffering. This inference seems the more probable, as he was interred in Westminster abbey at the expense of the earl of Essex, who would scarcely have allowed the man to starve whom he thus honoured. A monument was afterwards erected over his remains by the celebrated Anne, countess of Dorset. Of the personal character of Spenser there is no direct testimony; but the friendships which he formed are favourable to its respectability, which is also to be implied from the purity, devotion, and exalted morality of his writings. Neither, although he paid assiduous court to the great, was he guilty of the mean adulation so common in his time, except, indeed, to queen Elizabeth, by whom, both as a sovereign and a woman, it was levied as a kind of tax. As a poet, although his minor works contain many beauties, Spenser will be judged chiefly from the Faery Queen, the predominant excellencies of which are imagery, feeling, and melody of versification. With all its defects, it furnishes admirable examples of the noblest graces of poety, sublimity, pathos, unrivalled fertility of conception, and exquisite vividness of description. Its great length and want of interest, as a fable, added to the real and affected obsoleteness of the language, may, indeed, deter readers in general from a complete perusal; but it will always be resorted to by the genuine lovers of poetry as a rich store-house of invention. The stanza which Spenser has adopted in the Faery Queen, is usually called the *Spenserian*, either because he invented it, or was the first to apply it to extensive use. It consists of a strophe of eight decasyllabic verses, and an Alexandrine, and has a three-fold rhyme—the first and third verses forming one, the second, fourth, fifth, and seventh another, and the sixth, eighth, and ninth the third. It is susceptible of great variety of expression, and admits equally of the most different kinds of composition—the droll or pathetic, descriptive or sentimental, tender or satirical. The best editions of Spenser's works are those of Hughes and Todd (8 vols., 8vo., 1805, with notes and a life). See Warton's *Observations on the Faery Queen.*

SPERMACETI, SPERM OIL. See *Fat*, and *Whale*.

SPESSART; a woody, mountainous chain of Germany, in the Bavarian circle of the Lower Maine, extending along the right bank of the Maine, by which it is nearly surrounded. The highest summit is Geyersberg, 2000 feet high. There are about 300,000 acres (*morgen*) of forest, belonging principally to the crown of Bavaria, and consisting chiefly of oak and beech. Cobalt, copper, and iron are obtained in the Spessart. Aschaffenburg, on the south-western edge, is the principal place.

SPEYER, or **SPEIER**. See *Spire*.

SPEZIALE, member of the junta of government, instituted in 1799, at Naples, was the son of a peasant of Borgetto, not far from Palermo. His servile deportment procured him a place in the *corte prætoriana e capitanale* at Palermo. When the court of Naples fled to Sicily, he showed a bitter hatred towards the French, and violently persecuted the suspected, so that the chevalier Acton appointed him to try the persons accused of having taken part in the revolution. Even before the French had left Naples, he began to exercise his office on the island of Procida, which was protected by Nelson. He surrounded himself with gibbets and executioners, and every day was marked with executions. The cruelty of his character now became manifest. No sex, age, or class was spared. No defence was allowed. Hardly was the cardinal Ruffo in possession of the capital, when Speziale received orders to transfer his bloody court thither. He even deceived his own friends, and allured them to their destruction. This monster followed the court to Palermo in 1806, became insane soon after, and died distracted, in 1813, loaded with the curses of the nation.

SPEZZIA. See *Hydra*.

SPHAGNUM; a very natural genus of mosses, easily recognised when once known, and remarkable for the whitish colour of the leaves. These plants are soft, flaccid, and, when moistened, absorb water like a sponge, but become friable in drying. They grow in moist places, and are usually saturated with water, often occupying, exclusively, considerable tracts of marshy ground. The formation of peat, in such situations, is often owing, in a great measure, to the presence of these plants. They are found in all parts of the globe, from the equator to the polar regions, and to the summits of the highest mountains. They are excellent for enveloping the roots of plants intended for distant transportation.

SPHERE; a solid, every point of the surface of which is equally distant from a certain point within the same, called its *centre*. It is generated by the rotation of a circle upon one of its diameters as an axis. Any circle described on the sphere, and whose centre is that of the sphere, is called a *great circle*. The solid contents of a sphere are to those of a cylinder (q. v.) of equal base and altitude, (the diameter of the base of the cylinder being equal to that of the sphere) in the proportion of two to three; to those of a cone of equal base and altitude as two to one. These proportions were discovered by Archimedes. Nature, from the egg of the smallest worm, and from the drop of dew to the largest body in the universe, strives after the form of the sphere. Therefore, in antiquity, when the spiritual was represented by the sensible, many philosophers conceived of God under the form of a sphere.

SPHEROID; a solid, generated by the entire rotation of a semi-ellipse, or other curve not differing much from it, upon its axis. As our earth has the form of a sphere, flattened at the poles, it belongs to the spheroids. Telescopes show a similar form in Jupiter and Saturn; and there are sufficient grounds for ascribing the same form to all the heavenly bodies which have a rotation on their axis. See *Earth*.

SPHINX; a fabulous monster, which figures both in the Grecian and Egyptian mythologies, and was probably of Egyptian origin. The sphinx of the Greeks is distinguished for cruelty as well as wisdom. Juno, says the fable, provoked with the Thebans, sent the sphinx, the daughter of Typhon and Echidna, to punish them. It laid this part of Bœotia under continual alarms by proposing enigmas, and devouring the inhabitants if unable to explain them. The Thebans were told by the oracle that the sphinx would destroy herself as soon as one of the enigmas she proposed was explained. In this enigma, the question proposed was, what animal walked on four legs in the morning, two at noon, and three in the evening. Upon this, Creon, king of Thebes, promised his crown and his sister Jocasta in marriage to him who should deliver his country from the monster by a successful explanation of the enigma. It was, at last, happily explained by Œdipus, who observed that man walked on his hands and feet when young, or in the morning of life; at the noon of life he walked erect; and in the evening of his days, he supported his infirmities upon a stick. (See *Œdipus.*) The sphinx no sooner heard this explanation than she threw herself from a rock, and immediately expired. The Egyptian sphinx does not appear to have been distinguished by the same traits of character. It is formed with a human head on the body of a lion; is always in a recumbent posture, with the fore-paws stretched forward, and a head-dress resembling an old-fashioned wig. The features are like those of the ancient Egyptians, found in the ancient ruins. The colossal sphinx, near the group of pyramids at Gize, has recently been uncovered by Caviglia. It is about 150 feet long and sixty-three feet high: the body is monolithic; but the paws, which are thrown out fifty feet in front, are constructed of masonry. The sphinx of Sais, formed of a block of red granite twenty-two feet long, is now in the Egyptian museum in the Louvre. There has been much speculation concerning the signification of these figures. Winckelmann observes that they have the head of a female, and the other parts of a male, which has led to the conjecture that they are intended as emblems of the generative powers of nature, which the old mythologies are accustomed to indicate by the mystic union of the two sexes in one individual.

SPHRAGISTICS (from σφϱαγις, a seal); a branch of diplomatics which teaches the history of seals and the means which they afford of determining the genuineness of the documents to which they are attached. Originally, only persons of rank, churches, convents, or corporations, had the right to use seals. The old seals represented the persons to whom they belonged either on foot (*sigilla pedestria*) or on horseback (*sigilla equestria*), or had figures emblematical of their dignity. They are round or oval, impressed in gold, silver, lead, but generally in wax of various colours. The difference in the colour of the wax indicated different degrees of dignity, &c. In the sixteenth century, sealing-wax came into use. (See *Seal.*) Sphragistics, as a science, dates from the great work of Heineccius on seals, in 1709 (new edition 1719, folio, Leipsic). See also Ficoroni's *I Piombi Antichi* (Rome, 1740, 4to.); Manni's *Osservazioni istoriche sopra i Sigilli antiche de' Secoli Bassi* (Florence, 1739—86, 30 vols., 4to.); and Ph. W. Gercken's *Ammerkungen über die Siegel zum Nutzen der Diplomatik* (Augsburg, 1781; Stend., 1786).

SPICE ISLANDS. See *Moluccas.*

SPIDER (*aranea*). These well-known animals are among the most interesting of the insect world, from their habits and mode of life. They differ essentially, in their internal structure, from insects proper, and their external form is so peculiar that they are easily recognised. The body is composed of two pieces only, the head being united with the thorax; and the feet are always eight in number; the jaws consist of two cylindrical, horny pieces, each having a palp, or feeler, at base, and terminated by a movable hook; the eyes are six or eight, variously disposed in the different genera, but always simple. They do not undergo metamorphoses; all envelope their eggs in a cocoon of silk, varying, however, in form and texture. The spiders are now arranged under numerous genera, differing, not only in anatomical characters, but very generally in their habits and the form of the web which they construct. The most familiar form of a web is that of a wheel, perpendicular or slightly inclined, having its radii or spokes crossed by numerous concentric circles; in the centre of this the spider remains immovable, or more frequently in a little cell, at some distance from the web, but connected with it by threads. The struggles of an entangled insect communicate an undulatory motion to the whole web, which gives notice to the spider, who immediately sallies forth, and, if his victim be small, seizes it at once, and immediately sucks its blood: if, however, it be too large to be thus disposed of, the spider rolls it with his hinder feet, encircling it with a new thread at every turn, until, sometimes, the insect is completely coated, when it may be devoured at pleasure. Other spiders spin an irregular web, consisting of threads intersecting each other at every angle. Others, again, make a horizontal, closely-matted web, having a funnel-shaped retreat, into which they convey their prey. Others make only a retreat by binding a few leaves together, from which they sally forth and seize insects which approach them. Some of these seem to be extremely venomous; for it is observed that no insect that has been once bitten by them, ever recovers, even though it be many times larger and more powerful than its adversary. Some are aquatic, and spin a cup-like web, which answers the purpose of a diving-bell, under which they disengage the air they bring down from the surface, and pass their lives feeding on aquatic insects. Some spiders spin no web, but take their prey by running; others, by approaching quietly till within a certain distance, when they suddenly leap upon their prey. Other spiders form cylindrical and perpendicular holes in the ground, into which they retreat on the approach of danger.

SPINAGE (*spinacia oleracea*). This plant is a native of Persia, and has been cultivated in Europe, as an esculent, for about two centuries. The root is annual; the stem herbaceous, smooth, upright, a foot or more high, and somewhat branching; the leaves alternate, petiolate, and arrow-shaped; the flowers small and greenish, disposed in several little bunches, in the axils of the superior leaves, and diœcious: in short, the whole plant much resembles some of the species of goose foot (*chenopodium*), to which genus it is allied in its botanical characters. It is eaten sometimes in salads, but more frequently, cooked in various manners. It is a wholesome and agreeable aliment, but contains little nutriment, and is not suitable for delicate stomachs. The plant is of the easiest culture, and may be procured nearly all the year round, by sowing at intervals of time. It requires a rich soil, and frequent watering in dry weather.

SPINE (from *spina*, thorn, so called from the shape of the processes of the vertebræ), in anatomy the vertebral or spinal column, the *back-bone* in common language, is the articulated bony pillar at the back of the trunk, forming the foundation or basis of support and connexion to all the other parts of the frame. It is placed perpendicularly in the body, supporting the head on its upper extremity, while the lower end rests on the pelvis. The bones of the chest, to which the upper extremities are attached, are fixed to its sides, while the *ossa innominata*, or the great bones to which the lower limbs are articulated, are immovably united to it below. It is the point of attachment and support in front for the viscera of the thorax and abdomen, and for the great trunks of the blood-vessels. We may thus regard it as the central and most essential piece of the skeleton, as the centre of motion for the head and limbs, and the basis of support for all the great internal organs. Again, the bones which compose it give attachment to the principal muscles moving the head, the shoulders and the arms, to those which act on the trunk, and to some part of the abdominal muscles, and of those which move the lower limbs. Further, it constitutes a canal, which receives and protects the spinal marrow, and gives issue to the various nerves proceeding from that organ to the trunk and limbs. The importance of the spine is so great that it modifies all the details of the organization of the animals which possess it. It is formed of twenty-nine pieces of bone, strongly articulated into each other, and placed in succession from above downwards. The twenty-four upper ones are called *vertebræ.*

Distortions of the Spine are the unnatural inflections of the spine, which gave a more or less deformed figure to the trunk, and even to the limbs; hence wry neck, high shoulders, humpback, uneven hips, lameness, &c., are very frequent among the higher classes of our time, particularly among females, and generally owing to want of care or judgment in those who have charge of children, or to the injudicious habits of the persons afflicted, and frequently aggravated or made permanent by improper means used for remedying them. The beauty of the whole body depends chiefly upon the natural formation of the spine. This column of vertebræ ought not permanently to deviate from the straight line to the right or left; but it has naturally some slight curvatures forwards and backwards. In the region of the loins, it is bent a little forward; in the region of the chest, a little backward, and, at the neck, again, somewhat forward. This regular formation of the spine is produced by the character of the vertebræ, the cartilages which unite them, and the muscles of the back, which support and move them. If the vertebræ themselves suffer from disease, as, for instance, in case of rickets, the spine is not capable of supporting the head and keeping the body straight, it becomes curved, and, if remedies are not applied in season, this unnatural curvature increases daily, and permanent distortion at length takes place. If the cartilages and ligatures suffer relaxation, as in case of a debilitated state of the body, the spine cannot, after every motion, resume its proper position, and it may easily happen that some vertebræ become partially dislocated, and thus a disposition to distortion takes place, because the part of the spine over these vertebræ is deprived of its proper support, and must incline to one side. The muscles of the back, situated on both sides of the spine, equal in number and form, and destined not only to execute the manifold movements of the trunk, but also to maintain, by the equilibrium of their power, the straight direction of the spine, frequently occasion distortions, by losing their vigour; for the spine, in this case, wanting its natural support, inclines sideways or backwards. The same effect may be produced by too frequent or too continued use of one set of muscles in a particular way; for the spine becomes at last permanently fixed in the posture which it has been compelled to assume during the exercise. This survey shows us the various causes of distortions, and the proper means for preventing them. The causes may be reduced to diseases and injudicious habits. The diseases of children which may occasion distortions of the spine are chiefly scrofula and rickets, so often connected with it, and general debility. These diseases may be best prevented by the use of food easily digestible by pure air, hard beds not too warm, frequent exercise, great cleanliness, frequent bathing, washing and rubbing the skin, and similar requisites of a good physical education. The muscles of the back are often debilitated by compelling children, particularly weakly ones, to sit up in a constrained posture, which distresses the spine, and produces a sinking and bending in search or relief, or by allowing children too little free movement and exercise, and obliging them continually to sit still and read—the surest mode of producing physical and intellectual cripples. The use of corsets also contributes much to the weakness of the dorsal muscles, and consequently to distortion of the spine. If the shoulders are continually supported artificially by a corset, the dorsal muscles, destined by nature to keep the spine straight, remain inactive, and lose their power, the body becomes unable to support itself without the corset, and a sinking and bending take place as soon as it is removed. If to this is added the continual command, perhaps accompanied by threats, to sit straight, which has become actually impossible to the child, its exertions result in nothing but a curvature of the spine, which is therefore so frequent in girls of the higher classes, but in boys of the same families, who are neither tormented with corsets, nor admonished so repeatedly to sit straight, is much rarer. The second cause of distortions—injudicious habits—deserves particular attention, because much may be done to prevent them. The habit of many nurses to carry children always on the same arm, accustoms the child to incline always towards one side, and to sleep in one position, from which a distortion of the spine naturally arises in the course of time. The bad position of the body in some amusements and occupations; for instance, the manner in which young people sit in writing, reading, drawing, sewing, embroidering, playing on the flute, violin, harp and guitar; the habit of crossing the feet in standing, or of standing on one foot; the habit of lying crooked in bed, and even the habit of girls to spend a long time in a constrained position dressing their own hair,—may occasion distortion of the spine. Every one-sided motion, often repeated, may produce a tendency to such distortion, and, the tendency once existing, the evil increases every day. This distortion, besides disfiguring the body, and unfitting the subject for certain avocations, also tends to produce inflammation of the lungs, dropsy of the chest, pulmonary consumption and apoplexy, a general disturbance of the health, and early death. With women, it often gives rise to painful labours, and sometimes makes a natural delivery impossible. The proper means of guarding against distortion we have already suggested in the directions respecting food, air, exercise and cleanliness, the prevention of ill habits on the part of nurses, and of the children themselves, and in the important rule, not to compel a straight carriage of the body by the wearing of corsets, nor by the continual injunction to stand and sit straight, as both tend directly to produce the evil intended to be prevented. It is important to detect a distortion of the spine as early as possible. It is therefore the duty of mothers and governesses to examine often the body of children. The child should be undressed, and placed in such a way (not lying down) that the entire back may be seen. The head must be held straight, the face directed forwards; the arms must hang down, and the whole position must be as easy as possible. Then the vertebræ must be struck slightly with the hand, to discover if there is a prominence or a sensation of pain in any place. The examiner should then proceed to the parts of the body on each side of the spine, which ought to be perfectly equal. The neck, the shoulders, and the hips, are to be looked at: if the latter are uneven, the hip joints and feet must be also tried. The examiner should also see whether the breast-bone be precisely in the middle of the breast, and whether it forms a straight line, whether the clavicles are uniform, whether the ribs lie even. With grown girls, the unevenness of the breasts often furnishes the earliest sign of distortion of the spine. These examinations ought to be made once or twice a week, and in the case of girls, even after they have arrived at maturity, because the years immediately succeeding the period of puberty are those in which distortions are most frequently manifested in the female sex, and because a cure can be hardly expected much after the twentieth year. Attention to distortion ought not to be delayed until a high shoulder or hip shows itself; these are only proofs of a distortion which has already long existed. If, however, any thing like distortion is perceived, do not resort to the means so often recommended of suspension by the arms, or the use of plasters, which can avail nothing, and do not expect that the dancing-master can remedy the evil, which will only increase under his lessons. Assistance can be rendered only by a physician familiar with these deformities, and who has made himself acquainted with the general state of body of his patient by a careful examination. The cure must not be expected too soon; and the orders of the physician must be scrupulously obeyed. Too much reliance is not to be placed on machines.—See Wenzel, *On the Diseases of the Spine* (with engravings, Bamberg, 1824, folio); see, also, *Orthopædic Institutes.*

SPINELLAN. See *Sodalite.*

SPINELLE (*Spinelle Ruby* and *Pleonaste*). The primary form of this species is the regular octahedron; and this is the figure under which it generally occurs. It is rarely modified by the truncation or the bevelment of its edges, and sometimes presents itself in hemitrope crystals. Its crystals vary in dimensions, though they are usually not above the size of a pea. Their cleavage is very difficult; fracture conchoidal; lustre vitreous; colour red, passing into blue and green, also into yellow, brown and black; transparent to opaque; hardness above that of quartz; specific gravity 3·5. The red varieties of spinelle are called, by jewellers, *spinelle ruby*, while those possessed of a darker colour are called *Ceylonite* or *Cleonaste.* The following analyses—the first of which is by Berzelius, the second by Klaproth, and the third by Descotils—exhibit the chemical composition of the species:

	1. Blue Spinelle.	2. Spinelle Ruby.	3. Pleonaste.
Alumine,	72·25	74·50	68·00
Silex,	5·45	15·50	2·00
Magnesia,	14·63	8·25	12·00
Oxide of iron,	4·26	1·50	16·00
Lime,	0·00	0·75	0·00
	96·59	100·50	98·00

The red varieties, exposed to the heat of the blowpipe, become black and opaque; on cooling, they appear first green, then almost colourless, and at last re-assume their red colour. They are with difficulty fused with the aid of borax—melting, however, a little more easily with salt of phosphorus. Pleonaste yields a deep green colour to the globule. The original depositaries of this species are white limestone and a drusy volcanic rock. It is often found, however, in more recent deposits, formed by diluvial or alluvial action, along with crystals of corundum and zircon. The isolated crystals chiefly come from Ceylon. In Südermannland, in Sweden, bluish and pearl-gray varieties occur, imbedded in granular limestone. Crystals of a green colour are found imbedded in the drusy cavities of rocks ejected by Vesuvius. But the United States surpass the rest of the world, both as to the number of the localities of spinelle, and the dimensions of its crystals. It abounds particularly in the towns of Amity and Edenville, in Orange county, New York; at which places it occurs in a highly crystalline, white limestone, and likewise loose in the soil, in crystals varying from the size of a pea and under, to those whose smallest diameter is four inches. Their colours are either black, or dark greenish, or bluish black, though it is rarely of a pale pink, or reddish-brown. These crystals are associated with hornblende, mica, augite, idocrase and scapolite. Spinelle of a rich green colour is also found in the county of Sussex, New Jersey. The crystals from this spot are highly modified in their figure, and are sometimes nearly transparent. Green and blue spinelle is also found in Massachusetts. Clear and finely-coloured red varieties of the present species are highly prized as ornamental stones in jewelry. They go generally by the name of *spinelle ruby*, or *balas ruby.*

SPINET: a stringed instrument, formerly much in use, but now superseded by the pianoforte, somewhat similar to the harpsichord, and, like that consisting of a case, sounding-board, keys, jacks, and a bridge. The difference between the spinet and the harpsichord is, that the latter is larger, and contains two or three sets of jacks and strings so disposed and tuned as to admit of a variety of stops, while the former has one set of jacks and strings, and consequently only one stop. When the spinet was first brought into use, though its invention was certainly anterior to that of the harpsichord, is not exactly known. But that it is derived from the harp is evident, from its character as well as construction, internal and external; and, indeed, it was originally called the *couched harp*, since denominated *spinet*, from its quills, which resemble thorns, called in Latin *spinæ.*

SPINNING. When the fibres of cotton, wool, or flax, are intended to be woven, they are reduced to fine threads, of uniform size, by the well known process of spinning. Previously to the middle of the last century, this process was performed by hand, with the aid of the common spinning wheel. Locks of cotton or wool, previously carded, were attached to a rapidly revolving spindle, driven by a large wheel, and were stretched or drawn out by the hand, at the same time that they were twisted by the spindle, upon which they were afterwards wound. Flax, the fibres of which are longer and more parallel, was loosely wound upon a distaff, from which the fibres were selected and drawn out by the thumb and finger, and at the same time were twisted by flyers, and wound upon a bobbin, which revolved with a velocity somewhat less than that of the flyers. The manufacture of flexible stuffs by means of machinery, operating on a large scale, is an invention of the last century. Although of recent date, it has given birth to some of the most elaborate and wonderful combinations of mechanism, and already constitutes, especially in Britain, an important source of national wealth and prosperity. See *Cotton Manufacture* and *Woollen Manufacture.*

SPINOLA, Ambrose, marquis of, one of the most distinguished generals of his age, was born at Genoa, in 1569. His brother Frederic, who had been appointed to the command of the Spanish fleet on the coast of the Netherlands, induced him to join the Spanish forces in the Low Countries, with 9000 Italian and Spanish veterans. After the manner of the old Italian *condottieri*, or leaders, who collected forces on their own account, and then served at their head in the pay of the Italian states, he was permitted to pay his troops himself, and to receive his compensation from the Spanish treasury. This circumstance, at a time when the conduct of wars depended so much upon the troops being paid regularly, and the best concerted expeditions failed for want of money, assured him of the success which soon rendered him so celebrated. While mutiny and insubordination prevailed in the rest of the army, his 9000 Walloons were models of discipline and order. The archduke, Albert of Austria, whom Philip II. had appointed governor of the Netherlands, employed Spinola in the capture of Ostend, which had been so long besieged by the Spanish troops, that Albert despaired of reducing it. Spinola was more successful: it fell into his hands in 1604, after having sustained a siege of three years and two months. He obtained possession of a mere heap of ruins, but his reputation was at once spread over all Europe, in which every eye was fixed upon this siege. Spinola hastened to Madrid, to give the feeble Philip information of the state of his troops, and received full powers to suppress their disorders. He was named commander-in-chief of all the Spanish and Italian forces in the Netherlands. On his way back to the theatre of war, he had a conversation with Henry IV., at Paris, who inquired of him his plan for the next campaign. Spinola explained to him all his designs without reserve; but Henry supposing that this was a mere feint, and that he would follow exactly a contrary course, communicated his suspicions to prince Maurice, and both of them were thus completely duped. "Others," said Henry, "deceive their enemies by falsehood, Spinola by the truth." Maurice at length discerned the artifice, but was able to gain no decisive advantage over his adversary. The two generals ably availed themselves of the fortresses and nature of the ground, to keep each other in check. A decisive naval action near Gibraltar, in which the whole Spanish fleet was destroyed by the Dutch admiral Heemskerk (1607), induced the Spanish court to propose an armistice, which was concluded between Spinola and Maurice for twelve years (1609). The neighbourhood of Juliers-Cleves-Berg had tempted the Dutch to take part in the dispute concerning the succession to that duchy, (see *League*), and Spain, instigated by hatred of Protestantism, by her connection with the house of Austria, and the hope of recovering her lost dominion over Holland, entered into the war (1621). Cleves fell into the hands of Spinola, Breda was invested by the Spanish forces, and Maurice perished in his efforts to compel the enemy to raise the siege. Spinola himself was made sick by the noxious air of the marshy soil; but the gates were finally opened to him after a ten months' siege (May 1625). This was his last achievement; his health obliged him to resign the command, although he once more appeared in the field, in Italy (1630). but chagrin at the ill-treatment of the Spanish court, hastened his death, which took place in 1630, too soon for Spain, but not too soon for his fame, which, perhaps like that of Tilly, would have suffered, had he lived to encounter Gustavus Adolphus. His rival Maurice, when asked who was the greatest captain of the age, said "Spinola is the second."

SPINOZA, Baruch, or as he translated his name, Benedict, was born in 1632, at Amsterdam, of a Jewish Portuguese family, and early gave proof of a reflecting mind and an independent spirit, which a scanty education only excited to new efforts. He was early dissatisfied with the instructions of the rabbins, and determined to examine for himself. The goodness of his disposition could not preserve him from persecution when his mode of thinking was discovered. He was calumniated and accused before the synagogue. He refuted the accusations with calmness, in spite of menaces on one hand, and zealous attempts to convert him on the other, but was at length excommunicated. He received the sentence with equanimity, and thenceforth joined no particular religious denomination. After this event Spinoza learned Latin and Greek of Van den Ende, a Dutch physician, and fell in love with his daughter; but a rival succeeded in winning her affections, and Spinoza remained unmarried. The Jews still persecuted him, and even attempted to assassinate him. Meanwhile he continued his investigations, at first following the doctrines of Descartes, as his Principles of the Cartesian Philosophy show, and for support, employed himself in grinding optical glasses. See Siegwart *On the Connexion of Spinozism with the Cartesian Philosophy* (Tub., 1816); and Ritter *On the Influence of the Philosophy of Descartes* (Leipsic, 1816). Through the intrigues of the Jews, he was banished from Amsterdam by the magistrates for several months, and retired quietly to the house of a friend. He then went to Rynsburgh, in the vicinity of Leyden, and to Voorburg, near the Hague, where he devoted himself, for three or four years, to philosophical investigations; and at length, in compliance with the solicitations of several friends, he settled permanently at the Hague. Here he published his two principal works. Even his enemies allow that he was very temperate, regular and frugal; in the intercourse of life, he was kind and gentle, always affable and equable, patient, diligently employed in writing or making telescopes, so that he would remain at home for three months together, seeking his chief recreation in a pipe of tobacco, or in observing the contests of flies with spiders. His disinterestedness appears from the circumstance that he refused a gift of 2000 florins and a valuable legacy from his friend Van Vries, who then bequeathed to him an annuity of 500 florins, which Spinoza reduced again to 300. To his avaricious sisters he gave up all his patrimony, which was legally adjudged to him, except a single bed, that he might assert his right. He had many distinguished friends with whom he corresponded. The prince of Condé invited him to visit him, in 1672, at Utrecht, and sent him a passport. Spinoza accepted the invitation, but missed seeing the prince, who had been obliged by business to leave the city. The elector palatine was anxious to draw him to Heidelberg as professor of philosophy, with liberty to lecture as he should see fit; but Spinoza refused. For more than twenty years he had a tendency to consumption, and for this reason, he observed the strictest temperance; but owing to the clearness of his mind, and the usual kindness of nature to those who labour under this disease, he was calm and cheerful. He died in 1677. Several different authors have written his life, especially Diez (Dessau, 1783) and Philipson (Brunswick, 1790). His works in the Latin language are, 1. the Principles of the Philosophy of Descartes, with an appendix, containing metaphysical opinions (Amsterdam, 1663, 4to.); 2. a Treatise, political and theological, in which it is shown not only that freedom of thought can exist without endangering the public peace and virtue, but that it must necessarily stand or fall with them (1670, 4to.); 3. Posthumous Works (Amsterdam, 1677, 4to.); to wit, *a.* Ethics, demonstrated geometrically; *b.* a Treatise on Politics; *c.* an unfinished work on the Improvement of the Mind; *d* an unfinished Hebrew Grammar; and *e.* Letters. H. E. G. Paulus published these works of Spinoza in two volumes (Jena, 1802—3). His system is principally laid down in his Ethics, though valuable information is also to be obtained respecting it from his Letters.

Spinoza felt like every other philosopher, the longing to elevate himself to a point at which the struggle between matter and mind, liberty and necessity, &c., is done alway, and all discord ceases. This led him to the idea of an original substance embracing all existence. Substance, of course, in this sense, means something very different from what we usually understand by the word. (See *Substance.*) This original substance, in which all contradictions cease, all subjects of finite consciousness disappear, he called God; by which he understood that which has an independent existence, and the understanding of which requires not the idea of any thing else. This substance, according to him, is infinite, and nought else exists; it is incapable of creating any thing material or intellectual, for all matter and mind are comprehended in itself; its attributes are infinite thought and infinite extension. God, this all-embracing being, can act only in accordance with the established order, for otherwise we must suppose him capable of a change of nature, or that there exists a nature different from his own. Thought and extension, spirit and matter, finite and infinite, motion and repose, good and evil, causes and effects, are attributes of this sole substance, which produces nothing but modifications of itself. All that exists is only a necessary succession of modes of being in a substance for ever the same. It is impossible to give, in a work like the present, a satisfactory sketch of this system, which is very liable to be misunderstood, as it often has been. We can only refer the reader to the works mentioned below. The morality of Spinoza is founded mainly on force and utility.—See Jacobi's Work, *The Doctrines of Spinoza, in Letters to Mendelsshon* (Berlin, 1785; 2d ed., 1789); Moses Mendelsshon's *Morning Hours* (Berlin, 2d ed., 1786); and *To the Friends of Lessing, an Appendix to the Correspondence of Jacobi* (Berlin, 1786); also *God and Nature, according to the System of Spinoza*, by G. K. Heydenreich (Leipsic, 1789), with his *Animadversiones in Mosis Mendelii Filii Refutationem, etc.* (Leipsic, 1786); also Franke *On the modern Fate of Spinozism and its Influence on Philosophy generally* (Sleswic, 1812).

SPIRAL. Geometry usually considers two curves, under the name of *spirals*—the logarithmic and that of Archimedes. The latter is generally defined to be a curve of the circular kind, which in its progress recedes from its centre. But it is easily perceived that this definition is not mathematically satisfactory. The spiral may be imagined to be thus generated: If a right line has one end fixed while the other describes the periphery of a circle, and at the same time a point is conceived to advance continually on the right line from the fixed towards the moveable end, this point, with its double motion, will describe a spiral curve. The spiral spring of a watch gives a good idea of this curve.

SPIRE, or SPEYER (anciently *Noviomagus*, and *Nemetes*); a city of Bavaria, capital of the circle of the Rhine, formerly the capital of a bishopric of the same name; 12 miles south-west of Heidelberg; lon. 8° 26′ E.; lat. 49° 19′ N.; population, 7700, chiefly Lutherans. It contains an old cathedral, in the Lombard or Byzantine style of architecture, begun by Conrad, in 1030, and finished by Henry IV., in 1061, and a gymnasium. It was frequently the seat of the German diet, and it was in the diet held here in 1529, that a *protest*, entered against certain proceedings of the emperor, procured for the reformers the name of *Protestants*. The Bishopric of Spire, in the circle of the Upper Rhine, contained about 55,000 inhabitants, on 594 square miles. Much of it is mountainous, and covered with forests. It was secularized in 1802, and now belongs partly to Bavaria and partly to Baden.

SPIRITUALES; the officers who superintended the observance of piety and good morals in the seminaries of the Catholic bishops, and direct the religious exercises; also a branch of the Franciscans.

SPIRITUALISM; that hypothesis in philosophy, according to which, 1. every thing is spirit; 2. the physical proceeds from the spiritual, and can be explained from it; 3. the human soul, in particular, is opposed to matter, or the physical phenomena can be explained from the soul. Spiritualism is opposed to materialism, and therefore may be called *immaterialism*. (See *Matter*.) The system of Des Cartes had the character of spiritualism.

SPIRITUOUS LIQUORS. See the article *Temperance*.

SPITHEAD; a noted roadstead for shipping in the British channel, situated between Portsmouth and the Isle of Weight, directly facing Portsmouth harbour. It is about twenty miles in extent, and is said to be capable of holding 1000 vessels in great security.

SPITTLE. See *Saliva*.

SPITTLER, Louis Timothy, baron von, a distinguished German historian, was born at Stuttgart, in 1752. He showed, at a very early age, a disposition for historical and critical research. From 1771 to 1775 he studied at Tübingen. In 1777, he was an instructer in the theological seminary at Tübingen. Here he produced his Critical Inquiry into the 6th Loadicean Canon (Bremen, 1777); History of the Cup in the Lord's Supper; History of the Canon Law to the Times of the spurious Isidore (Halle, 1778), all in German; and was appointed *professor ordinarius* of philosophy at Göttingen. In 1797, he was made a privy counsellor in his native country. In 1806, he was appointed a minister of the Würtemberg government, and curator of the university of Tübingen. He died in 1810. His chief works are Sketch of the History of the Christian Church; History of Würtemberg under the Counts and Dukes (Göttingen, 1782); History of Würtemberg (ibid., 1783); History of the Principality of Hanover (1786); and Outlines of the History of the European States (3d ed., 1823) continued by Sartorius. He also wrote a History of the Danish Revolution of 1660 (1796), and many articles in the Göttingen Historical Magazine, which he edited in connexion with Meiners. All his works are in German. They are full of research, erudition, and just reflection, concise, yet complete. He never colours; the facts speak for themselves. His style is not free from negligence. His complete works were published by Wächer (Stuttgart, 1827). Plank, Heeren, Hugo and Woltmann have borne testimony to his merit.

SPITZBERGEN, or EAST GREENLAND; a group of islands, in the Frozen sea, supposed to have been first discovered by Sir Hugh Willoughby, in the year 1553. They received their name from their mountainous and rocky appearance. The sun never sets for three mouths—June, July and August: for the rest of the year, it is hardly seen, light being chiefly produced by the Aurora Borealis. In the month of June it freezes; in July the heat is violent; the cold returns in August. On the coasts are found whales, sea-dogs, sea-cows and sea-lions, with other marine and amphibious animals. These islands are uninhabited. Eight British sailors, accidentally left there by a whale-fishing ship, survived the winter, and were brought home the next season. The Dutch attempted to settle a colony there, but the settlers perished. Schemeerenburg is the best harbour (in lon. 9° 51′ E.; lat. 79° 44′ N.) in the later season of the whale fishery. Lon. 6° to 16° E.; lat. 76° 30′ to 79° 40′ N. See the article *North Polar Expeditions*; and Scoresby's work on the *Arctic Regions*.

SPIX, John Baptist von, a distinguished German naturalist, was born at Höchstadt, in Bavaria, in 1781, and, after devoting two years to the study of theology, was led, by his taste for natural science, to apply himself to medicine. In 1808, the Bavarian government provided him with the means of visiting Paris for the purpose of studying comparative anatomy; and soon after his return appeared his History of all Zoölogical Systems, from the time of Aristotle (in German). In 1815, he published his *Cephalogenesis, seu Capitis ossei Structura per* *omnes Animalium Classes*, &c., tracing the human head, in its gradual development, from those of insects, up through all classes of animals. In 1817, doctor Spix was appointed by the government, with doctor Martius, to make a scientific expedition to Brazil. The travellers landed at Rio de Janeiro, July 14, and, after exploring the eastern parts of the empire, embarked on the Amazons, July, 1819, which they ascended, and returned to Europe in 1820. Doctor Spix died in 1826. The results of the expedition to Brazil have been given in the following works; Travels in Brazil (from the German, London, 1824); Spix's *Simiæ, Serpentes, Testudines et Ranæ, Aves, Lacertæ Brasilienses*; and Martius's *Genera et Species Plantarum*, &c., (Munich, 1824—26), *Nova Genera et Species Plantarum* &c., (3d vol., folio, 1829, and *Icones selectæ Plantarum cryptogamicarum Brasiliensium* (1829, folio).

SPLANCHNOLOGY (from σπλαγχνον, an intestine); a branch of anatomy, which treats of the viscera, including not only the viscera of the abdomen, but all the organs contained in the other cavities of the body, as the brain, lungs, &c.

SPLEEN, OR MILT (Greek σπλην, Latin *lien*); a spongy viscus, varying much in form and size, situated on the left side, between the eleventh and twelfth false ribs, and covered with a simple, firm membrane, arising from the peritonæum. (See *Stomach.*) It is of an oval form, and about one fifth smaller than the liver. Its upper surface is connected with the diaphragm, and its interior with the stomach. It is convex towards the ribs, and concave internally, and of a livid colour. The splenic artery is very large in proportion to the size of the organ, and is divided into numerous small branches penetrating the substance of the spleen. The splenic vein is larger than the artery in the proportion of five to one, and, by its junction with the mesenteric, constitutes the trunk of the *vena portæ*, which carries the blood into the substance of the liver. From this splenic artery, several branches (called *vasa brevia*) go off to the stomach, which they supply with blood. The uses of the spleen are entirely unknown; but they appear to have some connexion with the process of digestion. The spleen is subject to inflammation (*splenitis*), and, as often happens after agues, the inflammation sometimes becomes chronic. The tumour is then commonly called the *ague-cake*, though that name is also given to a tumour of the liver succeeding intermittents. It is also in some cases too feeble in its action, and then the digestion suffers. Spleen is also sometimes used to signify the *hypochondriasis*. (q. v.)

SPLICING, among seamen, to join the two ends of a rope together, or to unite the end of a rope to any part thereof, by interweaving the strands in a regular manner. There are several methods of splicing, according to the services for which it is intended; all of which are distinguished by particular epithets. The term is also used in architecture.

SPLINTERS; the pieces of a ship's side, masts, decks, &c., which, being knocked off by a shot, acquire great velocity, and frequently do more damage among the men than the shot itself.

SPLINTER-NETTING; sinnet made into nets, and nailed upon the inner part of the ship's sides, to lessen the effect of the splinters.

SPODUMENE is a mineral found massive, in large cleavable individuals, whose primary form is an oblique rhombic prism of 93°. Its cleavage, parallel with the lateral planes of this figure, is easily effected; but its terminal cleavages are obscure; lustre pearly; colour various shades of grayish-green, passing into greenish-white; streak white; translucent; brittle; hardness nearly equal to that of quartz; specific gravity 3·17. It consists of

Silex, . . .	66·40
Alumine, . . .	25·30
Lithia, ...	8·85
Oxide of iron, . . .	1·45
	102·00

If exposed to a red heat, it loses its transparency and colour. Before the blow-pipe, it exfoliates, intumesces, and then melts into a nearly colourless, transparent glass. It occurs in primitive rocks, usually associated with quartz and feldspar. It was first discovered in Sweden, at Utoe, afterwards at Sterzingen, in the Tyrol, and was considered a rare mineral until within a few years, during which period it has been found in the greatest abundance in Massachusetts.

SPOHN, FREDERIC AUGUSTUS WILLIAM, a distinguished German philologer, was born at Dortmund, in 1792, studied at Wittenberg, and became professor of the Greek and Latin languages at Leipsic in 1819. Notwithstanding his early death in 1824, he had published several works, which show his learning and industry. Among them are a dissertation *De Agro Trojano* (1814); *Commentarius de extrema Odysseæ Parte; Nicephori Blemmidæ duo Opuscula geographica; Lectiones Theocriteæ* (1822 and 1823). The last years of his life were devoted to Egyptian studies; and an account of his system of hieroglyphics will be found under that head. His friend Seyffarth has edited some of his papers on this subject.

SPOLETO; a delegation, formerly a duchy, of the ecclesiastical states, comprising the great part of ancient Umbria; population, 102,053.

SPOLETO, the capital of the delegation, with a population of 6000, is a bishop's see, and lies fifty-three miles north of Rome; lon. 12° 36′ E.; lat. 42° 45′ N.; on an eminence near the small river Mareggia. It was once the residence of some of the Gothic kings. It contains twenty-two churches, twenty-one convents, and seventeen hermitages, and several ruins of Roman antiquities, the chief of which are a triumphal arch, an aqueduct, and an amphitheatre. The cathedral is built almost entirely of marble, and contains some good pictures.

SPONDEE, in prosody; a foot consisting of two long syllables, as *omnes*. See *Rhythm*.

SPONGE (*spongia*); a marine production, generally to be met with in the shops in pieces only. Its texture is cavernous and porous. Its great elasticity, and its property of imbibing, and as readily parting with a large quantity of water, renders it useful. Sponge is to be chosen as light as possible, perfectly clean, and free from stone, of as pale a colour as may be, with small holes, and fine, and soft to the touch. It grows in the Archipelago, at considerable depths, on the rocks, about some of the islands there; and multitudes of people make a trade of diving for it. It is also common in the Mediterranean and many other seas, though in general browner or yellower, and not so fine as that of the Archipelago. It adheres in large masses to rocks and stones, sometimes to large shells, and is either round, flat, or hollow, like a funnel. There has been much dispute among naturalists concerning the real nature of the sponge; nor is it yet satisfactorily decided whether it belongs to the animal or vegetable kingdom. But it appears to be destitute of irritability as well as of any locomotive power; and some recent writers have maintained that it is during a part of its existence a vegetable, and during the rest an animal. The opinion that sponge is, like coral, the work of a polype, is erroneous.

SPONSOR. (See *Godfather.*) To the remarks contained in that article we will only add that, when the person baptized is an adult, the sponsor answers for his religious belief. Some suppose that sponsors came into use in the first centuries of Christianity, when the assurance of a Christian of known character, that those who presented themselves for baptism were worthy of it, was considered requisite. This surety was also to answer for their further instruction. But Neander, in his excellent General History of the Christian Religion and Church (Hamburg, 1826, vol. i., part 2), says that sponsors were probably introduced with the baptism of infants, in order to make a profession of the Christian faith in their name, and to guarantee their religious education. Tertullian, who opposed the baptism of infants, mentions the case of the sponsors as one of the objections, because they must take upon themselves an obligation, which they may be prevented from fulfilling by death or the sinfulness of the godchild. The Roman and Greek Catholic churches consider the relation of the sponsor to the godchild a kind of adoption, and therefore forbid marriage between them. Between the sponsors themselves, they do not allow marriage to take place. The Catholics sometimes take a sponsor for confirmation.

SPONTANEOUS COMBUSTION. The phenomenon of combustion, it is well known, is often produced by friction, fermentation, and other causes, without the application of fire. Forests have sometimes been set on fire by the friction of dry wood; and it is well known that moist wool, hay, corn, madder, meal, malt, hemp and flax, and linseed-oil, and other animal and vegetable substances, take fire of themselves. In the latter case, the combustion is the result of a chemical action, being produced by the decomposition of the substance inflamed, and a new combination of its component parts, or by some other chemical change, attended with the evolution of heat. (See *Combustion* and *Oxygen.*) A similar phenomenon is exhibited on sprinkling new-burnt lime with water, which is rapidly absorbed with the evolution of heat and light. The heat, in this instance, proceeds from the consolidation of the liquid water into the lime, and the consequent developement of the latent caloric which always attends the conversion of a liquid into a solid. (See *Caloric.*) There have also been instances of spontaneous combustion taking place in living bodies, by which they have been reduced to ashes. It has been observed that persons who have suffered in this way were addicted to the excessive use of ardent spirits.

SPORADES; the general name for nineteen islands in the Archipelago (q. v.), lying to the east of the Cyclades. The principal are Scio, or Chios, Samos, Cos, Rhodes and Lesbos (see the articles). Patmos, or Pathmos, a small rocky island of the Sporades, is celebrated as the place of St John's exile. The grotto in which he is said to have written the Apocalypse is still shown, and a monastery, called the *monastery of the Apocalypse*, has been erected in commemoration of the event. The name *Sporades* is derived from the Greek *σπειρειν*, to sow, indicating the scattered position of the islands: hence the medical phrase *sporadic diseases*, in opposition to *epidemic*, signifying those which seize a few persons at any time or season.

SPORTS. The national amusements and pastimes of a people form an important feature in the national character. Taking their tone from the manners, habits and condition of the age or country in which they prevail, they lead us behind the scene on which the great drama of public life is exhibited, to the daily and familiar customs and events of popular life. The sports of a nation are of a religious or martial spirit, gay and mild, or dark and fierce, rude or refined, bodily or intellectual, as they are tinged by its habits and character, on which they reciprocally exercise a powerful influence. Besides numerous local holidays and sports, such as the harvest-home, in honour of Ceres and Bacchus, the panathenæa, celebrated in honour of Minerva by all the people of Attica, &c., there were four great national festivals among the Greeks, open to all people of the Grecian name. The Olympic, Pythian, Nemæan and Isthmian games (see the articles), were great public festivals, which inspired that polished people with a love of the arts, and imbued them with the spirit of social life. In these games, which were at once religious festivals and commercial fairs, the gymnastic and musical contests were exhibited in union (see *Music*); and the productions of genius, poems and histories, were rehearsed before all that was choice and learned of Greece, surrounded by the masterpieces of statuary, painting and architecture. The public amusements of the Romans were of a fierce and sanguinary, or of a coarse and rude character. Their triumphs, their gladiatorial fights, their combats of wild beasts, their religious festivities, which were scenes of boisterous revelry, showed how much behind the Greeks they were in refinement and taste. (See *Circus*, *Gladiators*, and *Triumph.*) In the middle ages, religion and war were the chief elements of the social life, and the amusements were chiefly of a religious or military character. (See *Festivals*, *Chivalry*, and *Tournament.*) Many of the modern popular sports originated from religious festivals; such are morris-dances, theatrical shows (see *Mysteries*, and *Moralities*), &c. Bull-fights continue to form the national amusement of the Spaniards, though the baiting of beasts has nearly gone out of use in England. Cock-fighting, horse-racing, and boxing, national dances, and the field sports of hunting, hawking or archery, are the favourite amusements of some people. But, in some countries, the progress of industry, the habits of domestic life, and the general diffusion of books, have in a great measure superseded the pastimes which were formerly so universal. (See Strutt's *Sports and Pastimes of the People of England;* Brand's *Popular Antiquities;* and Smith's *Festivals, Games and Amusements.*) Among the amusements of most nations, games of chance hold an important place, and are undoubtedly of very ancient origin. Those in which the fingers are the instruments, as in the Italian *mora* (q. v.), are probably the oldest. The invention of dice (q. v.) is attributed to the Greek Palamedes; that of chess (q. v.) to the people of India. Both games were known to the Greeks and Romans. The games of mixed chance and skill are also of early origin. These were known to the Romans, but they were principally attached to games of chance (*aleæ*), although they were prohibited by law, and the players reputed infamous. The ancient Germans, according to the description of Tacitus, were passionately devoted to gaming. "They addict themselves," says he, "to dice when sober, and as a serious employment, with such a mad desire of winning or losing, that, when stripped of every thing else, they will at last stake their liberty and their very selves. The loser suffers himself to be bound and sold." Cards (q. v.) are of modern invention; and the games at cards are some of them purely games of chance, others of chance and skill combined. The laws of some countries, as of England, prohibit gaming. France, up to the 1st Jan., 1838, when the system was abolished, had licensed gaming-houses, from which a considerable revenue was drawn. Henry VIII. of England issued a proclamation against unlawful games, in consequence of which dice, cards, tables and bowls, were seized and destroyed in many places, though he himself was a great gambler; and we read of his losing much of the plunder of the suppressed abbeys at games of chance. Suspected gamesters, in England, may be brought before magistrates, and required to find sureties not to play or bet during twelve months, to the amount of twenty shillings, and, in default of sureties, may be imprisoned.

SPOTTED FEVER. An epidemic disease, now generally recognised by the name of *spotted fever*, prevailed extensively in many parts of New England, and in some parts of several of the other American states, at different times between the years 1806 and 1815. A few cases of the disease occurred in Medfield, Massachusetts, about thirty miles south-west of Boston, in March, 1806. The number was small, however, not exceeding twenty, and the disease did not extend itself so as to attract general attention until the following year. In March and April, 1807, it appeared in Hartford, Connecticut, and in several other places on the Connecticut river: and also in Williamstown, in the north-western part of Massachusetts, on the Green mountain range. It disappeared during the summer, but returned the following winter, visiting, in some instances, the same places, besides many others in the same neighbourhoods and similar situations, and also attacking other and detached parts of New England. The disease followed a similar course for several succeeding years. It disappeared during the summer, and recurred with the return of winter; and for several years, until 1813, it became, each year, more extensive and more destructive. In some of these years, it also prevailed extensively in the interior of the states of New York and Pennsylvania. In 1812, the troops of the United States' army suffered by it severely at various places in New York and Vermont. After 1813, the disease rapidly diminished, although it still remained destructive, especially in some parts of Maine. It finally ceased in the spring of 1815. The last place visited by it, so far as our information extends, was Berwick, and Maine. There have, indeed, been occasional reports of the prevalence of a similar disease, at different times since that period; but it may well be doubted whether any of them actually refer to the true spotted fever as it prevailed from 1807 to 1815. This concise sketch of the progress of the epidemic shows that it prevailed much less in summer than in winter. In fact, it was only during a part of the colder season of the year that the disease raged the most severely. Unlike the ordinary typhus fever, it was much less frequent through the autumn and the early part of winter than during the later months of winter and the first months of spring.

It is worthy of remark, that the disease, in a great measure, avoided the large towns on the sea-coast. Although it pervaded, at different times, almost the whole of the interior of New England, Boston and the other large towns were only slightly visited by it. In the interior also, the epidemic was not more prevalent, perhaps even less so, in the larger and more crowded villages, than among the more scattered population. This is the more remarkable since those persons whose modes of life render them peculiarly susceptible to disease of every kind are more frequently collected in the larger towns and villages. But this epidemic seemed scarcely to regard peculiar susceptibilities of any kind. The man whose constitution was exhausted by excesses, undoubtedly yielded more readily if attacked, and fell a more certain victim, than the man of temperate and regular habits. But it does not appear that such were more frequently attacked than others. On the contrary, the disease seemed rather to select the healthy and vigorous. Although its range embraced persons in every period of life, from childhood to old age, yet the proportion of cases and of deaths was much greater among adults of mature age, of firm health, and of habits every way calculated to resist ordinary disease.

Of the extent of the mortality produced by the spotted fever, there are no means of obtaining accurate knowledge. Except in the larger towns, no returns are preserved of the number of deaths, or their causes. There are, therefore, no data upon which to found an estimate of the destruction of life caused by this epidemic. It was, however, very great, and from the character and relative station of many of its victims, peculiarly afflicting. The visitation, too, was sudden, and, therefore, produced the greater alarm and distress. In some instances, the disease visited a place twice, or even three times. But, in general, its work was accomplished in a single visitation of a few weeks' duration. Dr Gallup remarks of the epidemic in Vermont, that "There are but few towns whose surviving inhabitants will not long, with grief, remember the winter of 1812—13, for the loss of twenty, forty or eighty of their most valuable citizens—most valuable to society on account of their being adult persons, and at the acme of human life."*

Of the causes of spotted fever, no satisfactory account can be given. There was nothing in the habits of the disease, or the manner in which it proceeded from place to place, to countenance the supposition of contagion; and such an opinion, we believe, has never been suggested. It is difficult to reconcile the phenomena of this disease to any of the other theories by which the progress of epidemics has been explained. If we attribute it to some secret atmospheric influence, it is not easy to account for the irregular and fitful manner in which it lighted upon detached and distant places almost at the same moment, while intermediate places were passed by for the time, only to be the subjects of a future visitation. It is still more improbable that exhalations from the surface of the earth could have been the cause, for the favourite season of the disease was when the whole surface of the earth was fast locked up by the frost. For a time, many physicians were inclined to suppose that ergot in the rye, which is much used in New England, might have contributed to produce the disease. But it has never been shown that ergot was more abundant in those years in which the epidemic prevailed, than in others; and what is more conclusive, the disease was not confined to those districts in which rye was used for bread. We must, therefore, regard the peculiar causes of spotted fever as altogether unknown.

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* Epidemics of Vermont.

There were two leading forms of the disease. One was a simple fever of a peculiar character. The other was complicated by local inflammation, but still retaining the same general character as the other. The more simple form began, like most other fevers, with coldness, not generally with distinct shivering; pain in the head and back, and especially in the limbs; prostration of strength, &c. In the milder cases, this was followed, as in other fevers, with some degree of reaction, manifested by heat, and afterwards by sweating; but, unless aided by proper remedies, the reaction was very imperfect; the coldness soon returned. with a peculiar want of action over the whole system. The surface of the body lost its peculiar elasticity, and had, in its stead, a torpid, half-œdematous, doughy feeling. Near the close of life, it was covered with a profuse perspiration. The stomach early became irritable, and rejected whatever was put into it, though without much vomiting of any thing else. The prostration increased, and was accompanied by violent pains in the back or limbs, which frequently changed from place to place, but without spasms of any kind. In many cases delirium came on very early. In most, as the strength of the patient failed, the mind became obscured, and he died comatose. In the more severe form of the disease, this comatose state followed the first attack, without any intervention of a stage of reaction: the patient became insensible, and died in a few hours. It was generally in the severe form that the spots, or *petechiæ*, appeared, which gave the name of *spotted* fever to the epidemic. They were not, however, confined to the more violent, or to the fatal cases, but were occasionally found in those which were comparatively mild. Neither, on the other hand, were they, by any means, general in the severer cases. In the earlier periods of the epidemic, they were much more common than towards the close of its progress. When they did appear, the spots were generally small blotches, caused by blood extravasated into the cellular membrane under the skin, of a dark purple colour. In many other cases there was a slight eruption of a very different character, which seemed to be caused by the excited state of the skin, where the diaphoretic and stimulating mode of treatment was carried to a great extent.

About the beginning of the year 1812, the spotted fever first began to assume a new form, in many cases, by becoming complicated with some local inflammation. This inflammation was sometimes in the throat, producing a species of cynanche; but its more common seat was some one or more of the textures of the lungs. The fever, however, still retained the same general character as before; and in most of the places where this form of the disease prevailed, frequent cases of the more simple form were intermingled with it. The cases with inflammation were ushered in, rather more frequently than the others, with a distinct chill; and this was oftener, perhaps, followed by a distinct reaction; but the general disease did not in these, any more than in the others, retain an inflammatory character. On the contrary, it ran speedily into a state of great depression; and when death ensued, it seemed to be less from the influence of the pulmonic symptoms, than from the violence of the general disease. There was pain in the chest, cough, and bloody expectoration; but these symptoms, although sometimes severe in the commencement of the disease, rarely retained their prominence so long as to appear to exert a very important influence upon the course of the disease, or to demand much consideration in the treatment, beyond what was necessary to give relief to the symptoms themselves. There were many other varieties in the modifications of the spotted fever, for it assumed a greater diversity of forms and appearances than most diseases. It was not always sudden and abrupt in its attack, as we have here described it, but sometimes crept on silently, slowly converting a slight indisposition into a severe and often fatal disorder. In whatever form it appeared, however, it preserved the same general character of great prostration and debility.

Little is known of its pathological character, except what is learned by inferences from its description and history. Only a few examinations after death were made, and these have done little to enlighten us in regard to the essential character of the disease. Had they been more numerous, the result would probably have been no more conclusive, than that of similar observations, in respect to the nature of fever in general. The blood was found to remain fluid for some hours after death. It consequently flowed to the depending parts, giving a dark colour to the skin in those parts, which was often mistaken by careless observers for putrefaction. But putrefaction did not begin early after death. The vessels of the brain, as might be expected from the comatose state which preceded most of the deaths, were found to be turgid with blood, and there was more or less effusion of serum into the ventricles, and sometimes of lymph under the arachnoid. In the chest, the heart sometimes exhibited marks of disease; its vessels being peculiarly injected with blood. The lungs, in the cases of simple spotted fever, were healthy. We have seen few accounts of dissections in the pneumonic form of the disease. In some cases, ulcerations, of a peculiar character, with black, gangrenous edges, were found in the pleura of the lungs, extending deep into the substance of the organ. This appearance can hardly have existed except in the severest form of pneumonic affection. But we do not remember any description of marks of inflammation in the lungs, which did not involve the serous membrane, although, from the symptoms, it can hardly be doubted that many such cases existed. The abdominal viscera were generally healthy. The gall bladder and the urinary bladder were filled with their appropriate fluids, showing that the secretions had been carried on until death. The result of our pathological observations is, that this disease was a fever, having a peculiar tendency to run rapidly into a state of great prostration and debility, and often more or less complicated with local inflammation of an erysipelatous character.

The practice which had previously been applied to ordinary fevers, was so entirely unsuccessful in the treatment of spotted fever, that many of the practitioners on whom the management of the disease at first devolved, seem early to have lost all confidence, not only in such a course of practice, but also in the resources of professional skill and science, and for a time to have abandoned themselves and their patients to empirical experiments. A respectable writer gives the credit to a worthy matron, of the first discovery of a successful treatment. This consisted in exciting a profuse perspiration, by drinking large quantities of a decoction of the leaves and twigs of the ground hemlock, or dwarf yew, aided by a rude sort of vapour bath, made by boiling billets of wood (of the hemlock, if to be obtained), and laying them, wrapped in cloths, into bed with the patient, who was, at the same time, to be kept highly stimulated with brandy, and other diffusible stimulants. But the more judicious and scientific part of the profession were not long in adopting their treatment to the true state of the disease. Adopting a hint, perhaps, from the effects of the empirical sweating and stimulating, which soon became common, they were able to pursue a course of diaphoretics and stimulants, which, while it avoided the dangers of empirical excess, was eminently successful in arresting the fatal tendency of the disease. Such diaphoretics were selected, as while they act promptly and surely, have the least tendency to induce debility. A moist heat, applied externally, added much to the efficacy of internal diaphoretics. A combination of ipecacuanha, opium, and camphor, sometimes with the addition of calomel, was much used, and with the best effects. It was necessary that a gentle diaphoresis should be constantly preserved, always with great care avoiding profuse sweating. The true measure of the use of stimulants, was the preservation of a healthful temperature and an equable pulse. In some cases, the tendency to coldness and prostration was so great, that large quantities of the most powerful kind were necessary—brandy, in hot water, tincture of cinnamon, tincture of opium, with tinctures of peppermint and lavender, were among the best; and these must be used, not so much in reference to the quantities given, as to the effects produced. Very early in the disease, almost as soon as a diaphoresis was established, tonics of a more permanent character were employed. The cinchona, in its different modes of administration, was chiefly relied upon. A favourite mode of using it, by many physicians, was in a fermented decoction, with orange peel and serpentaria. A nutritious and rather stimulating liquid diet was directed also quite early in the disease. Emetics were avoided, or used only when there were manifest symptoms of decided derangement of the stomach; and cathartics were only used to remove costiveness, and then none but the mildest laxatives were admissible. In the pulmonic form of the disease, blisters and expectorants were added to the other means. It was sometimes necessary, on account of the cough, &c., to defer a little the use of the cinchona and other tonics; but this did not often happen, and it never appeared safe to wait for a decided convalescence before resorting to them.

This is a mere outline of the treatment adopted by a large proportion of the most successful practitioners in this singular and formidable disease. It of course admitted and required great diversity in its application to the many varieties of form and symptoms which the disease assumed in different places and in the several cases. There were a few physicians, however, who objected to such a stimulating practice, and insisted upon the necessity of blood-letting and other evacuants, and who still contend, that an anti-phlogistic course of treatment was the most successful. It may be said, indeed, that the prostration and debility must have been produced by some active disease, and if that disease could be arrested by early bleeding, and other means, much of the prostration would be prevented. But, however true this may be in general, in the present instance, the good effects which generally followed a judicious course of stimulants, sufficiently showed that no such disorganization was produced by the disease, which was supposed to cause the debility, as to render it unsafe to trust to them to remove it. If the bleeding recommended had failed to prevent the sinking by arresting the disease, it must have increased the exhaustion, and consequently added to the difficulty of the cure; and to perceive accurately when it would be liable to do this, would have required a nicety of discrimination greater than belongs to most practitioners of medicine, if, indeed, it can ever be attained.

The results of the treatment were very various in different places. In many places, the disease, though violent and severe, yielded to remedies with a docility truly remarkable. At the same time, it required unceasing vigilance and care to prevent fatal relapses. In such places, most of the deaths seemed to result more from accidental imprudences or neglect, than from the incurable nature of the disease itself. In other places, the disease was speedily fatal to a large proportion of those attacked. In some small districts, twenty or thirty died in rapid succession, before any recovered. Much of this inequality is doubtless to be attributed to differences in the virulence of the epidemic itself. But there are many facts which go to show, that something must be ascribed to diversities of treatment. The comparison here intended, is not between the diaphoric and stimulating practice on the one hand, and the anti-phlogistic on the other, so much as between either of these and an awkward attempt to engraft either upon a routine of earlier days, which many men found it difficult to abandon. To our minds, the stimulating treatment, properly regulated, was incomparably preferable in its effects to the bleeding; but either was immeasurably better than the hesitating, inefficient practice to which we have alluded. Many instances occurred in which a change of practice was followed by a change of results, in the same neighbourhood, and often in the same families, so immediate and so striking, as to render it difficult to attribute the difference to any thing but the change of treatment.

SPRAT, or SARDINE (*clupea sprattus*); a small fish, hardly distinguishable, at first sight, from the herring, but smaller and more slender. It is found in the North Atlantic and Mediterranean, and keeps usually in the depths of the ocean; but during the autumn approaches the shore in vast numbers, for the purpose of depositing its spawn. The fishery is very lucrative, and has become an important branch of commerce in many parts of Europe. Sprats are taken in the same manner as herrings, except that the nets have smaller meshes; but it is necessary to salt them before bringing them to land.

SPRAT, Thomas, bishop of Rochester, was born in 1636, and received his academical education at Wadham college, Oxford, of which he was elected a fellow in 1657. Upon the death of Cromwell, he composed an Ode to the Memory of the late Lord Protector, abounding with the most high-flown adulation, and of the irregular class then termed *Pindaric*. Another, On the Plague of

Athens, followed in the same style. On the restoration, he showed an equal excess in the contrary direction, and, taking orders, was recommended by Cowley to the duke of Buckingham, who made him his chaplain, and whom he assisted in the composition of the Rehearsal. Being introduced by that nobleman to the king, the latter nominated him one of his chaplains. His intimacy with bishop Wilkins caused him to be chosen one of the fellows of the new royal society, of which, in 1667, he wrote the history. In 1668, he edited the Latin poems of Cowley, to which he added a life of the author. His reputation and talents for society rapidly advanced him in the career of preferment, and he became, in 1686, bishop of Rochester, probably as a reward for drawing up an account of the Rye-house plot. The manner in which he accomplished this task, undertaken, as he asserts, at the king's command, rendered it expedient for him, after the revolution, to print an apology. He was nominated by James II. one of the commissioners for ecclesiastical affairs, in the execution of which office he exhibited compliances, in expectation, it is said, of the archbishopric of York, which produced general censure, that was only partially alleviated by his withdrawing from the commission, in 1688. When James retired, Sprat spoke in his favour in the great conference on the vacancy of the crown, but submitted to the new government, and was left unmolested. In 1692, he was involved, with Sancroft, Marlborough, and others, in a pretended conspiracy. He detected the infamous practices of the informers, and cleared himself from the charge, but was so affected by the danger, that he commemorated his deliverance by an annual thanksgiving. He died in 1713. His writings are little esteemed at present.

SPREE, a river of Germany, which rises in Upper Lusatia, intersects the Spree forest, in Lower Lusatia, with more than a hundred arms, becomes navigable at Kossenblatt, forms at Berlin, an island, on which lies Köln (see *Berlin*), and falls, below Spandau, into the Havel.

SPRING. This season begins when the sun, in its ascent, crosses the equator, and ends when it reaches its highest position in the heavens at midday. In this country, February, March, and April are reckoned the spring months of the year; but the variableness of the climate renders the period of the real approach of spring a matter of great uncertainty. In the southern hemisphere, the astronomical spring begins September 23, and ends December 21; thus it falls about the time of our autumn. Under the equator, and, in general, in the torrid zone, the seasons of the year are not divided in the same manner as in the temperate. They are distinguished into the dry and wet seasons. See *Seasons.*

SPRING, among sailors, implies a crack running transversely or obliquely through any part of a mast or yard, so as to render it unsafe to carry the usual quantity of sail thereon. *Spring* is also a rope passed out of a ship's stern, and attached to a cable proceeding from her bow, when she lies at anchor. It is usually employed to bring the ship's broadside, or battery of cannon, to bear upon some object, as another ship, a fortress, &c. When a ship rides by anchors which are only attached to one end, she will move according to the direction of the wind or tide. Now, if a rope be extended from the other end to the same anchor, it is evident that, by slackening one of these ropes, and keeping the other fast, her side will lie more or less obliquely to the wind or tide, as occasion may require, so as to be opposed to any distant object to the right or left. *Spring* is likewise a rope extending diagonally from the stern of one ship to the head of another which lies abreast of her at a short distance, and is used to make one of the ships sheer off to a greater distance from the other. Springs of this kind are occasionally applied to a wharf or pier for the same purposes. *To spring a mast, yard,* &c. is to crack it transversely or obliquely.

SPRING TIDE; the periodical excess of the elevation and depression of the tide, which happens soon after the new and full moon. See *Tide.*

SPRINGS. The origin of the numerous springs that break forth from beneath the earth's surface cannot be referred to one exclusive cause. The internal reservoirs by which they are supplied are, in many cases, derived from the water which the earth absorbs from rains and melted snow; from these reservoirs, wherever there is uneven or mountainous ground, the water flows out by minute fissures in the sides of the hills. But when we see springs rising up in plains, it is evident that they must have ascended, that is, travelled in a direction contrary to that produced by the force of gravity, in order to reach the surface. This, no doubt, is sometimes to be attributed to water flowing under ground from distant elevations, and to the natural tendency of a liquid to find its level. But the rising up of springs in plains cannot always be accounted for in this manner; and it has, therefore, been supposed, that the earth contains capillary tubes. (q. v.) It is also evident that such springs as suffer no diminution even from the longest continued dry weather, must be derived from a source quite independent of rains, and other external means of supply. They must, therefore, proceed from some vast body of water within the earth: and it has, with apparent reason, been concluded, that many springs arise from the ocean, filtering through the pores of the earth, the salt particles being lost in the passage. Springs which have their waters combined with mineral substances, and are, from that circumstance, called *mineral,* are very numerous, and of various kinds. (See *Mineral Waters.*) Warm and hot springs are also common, especially in volcanic countries, where they are sometimes distinguished by violent ebullitions. Iceland is noted for these curious phenomena: its celebrated boiling fountain, the great Geyser, frequently throws out its contents to the height of more than a hundred feet; sometimes to twice that elevation. Periodical or intermittent springs are those which differ periodically in the quantity of water which they deliver, or even cease to flow entirely for a time. The spring of Fonsanche, near Nismes, flows daily for a little more than seven hours, and cease five hours; that of Colmars, in Provence, ceases to flow every seven minutes. In 1755, the great earthquake which destroyed Lisbon rendered it a perpetual fountain; but in 1763, it again became intermittent. This phenomenon is explained with much probability by the supposition, that there are cavities or basins under the earth, filled from above, and emptied by siphons. These empty the basin to the level of the point where the legs meet, then cease to flow until the leg connected with the basin is again filled to its highest point. (See *Siphon.*) If the siphon conducts the water to a distance, it may flow in dry weather and cease in wet.

SPRIT; a small boom, or pole, which crosses the sail of a boat diagonally from the mast to the upper aftmost corner, which it is used to extend and elevate. These sails are accordingly called *sprit sails*. *Sprit-sail* is also a sail attached to a yard which hangs under the bowsprit.

SPRUCE (*abies*.) The spruces are more strictly confined to the north than the pines, and their deep, gloomy forests form a striking feature in the vegetation of the colder parts of North America, Asia, and Europe. They are distinguished from the pines by their habit, and by their solitary evergreen leaves, deprived of a sheath at the base.

The black or double spruce (*A. nigar*) is very abundant in Lower Canada, Newfoundland, New Brunswick, Nova Scotia, Maine, and the upper parts of New Hampshire and Vermont. It grows to the height of seventy or eighty feet, with a trunk a foot or a foot and a half in diameter; and, as the summit has a regular pyramidal form, a solitary tree makes a beautiful appearance. The timber is distinguished for lightness, strength, and elasticity, and furnishes most of the spars used for vessels in the United States. These spars are exported to the West Indies and to Britain, where they are preferred to those of the Norway spruce; but they are not sufficiently large for the yards of ships of war. Knees for vessels, made from the base of the trunk and one of the principal roots, are much used in Maine, and sometimes also at Boston. The timber is, besides, extensively sawed into boards, which are sold one fourth cheaper than those of the white pine, and are exported to the West Indies and to England.

The red spruce is a mere variety of this timber, produced by a difference in soil. It is chiefly with the young branches of this species that the wholesome drink called *spruce beer* is prepared.

The white or single spruce (*A. alba*) inhabits the same districts, but is less abundant. It is a smaller tree, rarely exceeding fifty feet in height, and twelve or sixteen inches in diameter at the base of the trunk. The wood is employed for the same purposes as the preceding, but is inferior in quality. The fibres of the roots are very flexible and tough, and after maceration in water are used in Canada to stitch together the birch-bark canoes. It is distinguished from the preceding by its less crowded leaves, and their pale green colour, and the longer and more cylindrical form of its cones. It is much esteemed in Europe as an ornamental tree, and is frequently cultivated in parks and gardens.

The American silver fir (*A. balsamea*) is still less than the white spruce, and rarely exceeds forty feet in height. It is a beautiful tree, having the leaves longer than those of the black spruce, and silvery beneath. The cones are four or five inches in length, cylindrical, obtuse, and violaceous. The wood is light, but slightly resinous, and is little used. A few bottles of the turpentine are collected and sold under the improper name of *balm of Gilead;* and this remedy has acquired some celebrity in England, in certain stages of the pulmonary consumption.

The hemlock spruce (*A. Canadensis*) is readily distinguished by having the leaves distichous, or disposed in two ranks, and the cones terminal. It is particularly valuable for the properties of the bark.

SPUNGE. See *Sponge*.

SPUNGE; an instrument used to clean the cannon after firing, and to extinguish any sparks that may remain behind. They are sometimes made of bristles, resembling a round brush, but more generally of sheep-skin, with the wool outwards, nailed upon a block of wood nearly as large as the calibre of the piece. The block is either fixed upon a long wooden staff, or upon a thick piece of rope, well stiffened by serving it with spun-yarn. This latter is much more convenient on board of ships, on account of its flexibility, and generally has a block at the upper end, to use as a rammer. *To spunge a gun* is to clean it out with the spunge.

SPUN-YARN; a small line, or cord, formed of two, three, or more rope-yarns, twisted together by a winch; the yarns are usually drawn out of the strands of old cables, and knotted together. Spun-yarn is used for various purposes, as serving ropes, weaving mats, &c.

SPURRED RYE. See *Ergot*.

SPURZHEIM, Gaspard, doctor, a celebrated physiologist, was born near Treves, in 1776, and received his medical education at Vienna, where he became acquainted with doctor Gall, the founder of the science of craniology. To this science Spurzheim became exceedingly partial; and he soon joined doctor Gall in making inquiries into the anatomy of the brain. They quitted Vienna, in 1805, to travel, and went, in 1807, to Paris. From that period, doctor Spurzheim travelled and lectured in England, Scotland and Ireland, and, in conjunction with doctor Gall, published the result of his inquiries into the Anatomy and Physiology of the Nervous System; Inquiry into the Nervous System in general, and that of the Brain in particular; Physiognomical System of Doctors Gall and Spurzheim, &c.; an Examination of the Objections urged, in England, against the Doctrines of Gall and Spurzheim; Observations, &c., &c., on Mental Derangements; and Observations on Phrenology. In August, 1832, he visited the United States of America, and began his lectures in Boston, but death interrupted his labours, on the 10th of Nov., in the same year. See the article *Phrenology*.

SQUARE, in geometry; a quadrilateral figure, both equilateral and equiangular, or, in other words, a figure with four equal sides and equal angles, which geometry proves must be right angles. It holds the first place among the parallelograms. The height and width of a square are equal: all squares are geometrically similar, and the diagonal line, or the line through two opposite vertices, divides the square into two equal and similar triangles. On account of its perfect regularity, the square is of great importance both in pure and applied mathematics. In the measurement of surface, it is the form to which all others are reduced. From the rules for calculating the superficial contents of parallelograms in general (to multiply the base by the perpendicular height), and from the nature of the square, it appears that it is only necessary to multiply one side by itself to have the area of the square, because each of the sides may be considered as the basis, or as the perpendicular height. Thus a square, the sides of which measure four feet, is equal to sixteen square feet: i. e. sixteen squares each a foot high and a foot long. The area of countries is generally given in square miles. Sometimes a great mistake is made by using square miles for miles square: 300 square miles is an area of 300 squares, each of which measures one mile in length and breadth, whilst 300 miles square is a square each side of which measures

300 miles—hence the whole square contains 90,000 square miles. To square a figure (e. g. a polygon) is to reduce the surface to a square by mathematical means. It has often been attempted to square the circle, but as yet without success. (See *Circle.*) To obtain the square of a number, the number is multiplied by itself (see *Power*); and to extract the square root of a number is to find that magnitude which, multiplied by itself, gives the magnitude from which we have to extract the root. See *Root.*

Square, in tactics, is the figure formed by infantry to resist most effectually an attack of cavalry in the open field. It can be formed in different ways; and it was once customary to spend much time in drilling troops to execute all the varieties of squares and other figures having the same object; but experience has shown that the so called solid square is the best, on account of its moveability and simplicity, as well as its power of resistance, though it is, perhaps more exposed to the effects of artillery. In some armies (e. g. the Prussian), all other squares are abandoned. A column, being of a square shape, can be thrown into a solid square immediately by making the men face to each of the four sides. (See the article *Column.*) If a solid square is broken, the parts again form squares by facing to the four sides.

Magic Squares are square tables with divisions, like a chess board, filled with numbers in the natural series, or any other arithmetical progression, in such a way that the numbers in the horizontal and vertical lines, and sometimes, also, those in the diagonal lines, yield equal sums if added together; for instance,

1	15	14	4
12	6	7	9
8	10	11	5
13	3	2	16

Euler, Kircher, Franklin and others have made investigations respecting this subject.—See, among other works, Mollweide's *Commentat. de Quadratis Magicis* (Leipsic, 1816). In India, in which country these tables were probably invented, they are used as talismans.

Square-rigged vessels are contradistinguished to all whose sails are extended by stays, lateen, or lug-sail yards, or by gaffs and booms, the usual situation of which is nearly in a plane with the keel.

Square-sail is any sail extended to a yard suspended by the middle, and hanging parallel to the horizon, as distinguished from sails extended obliquely.

SQUATTERS. See *Public Lands.*

SQUILL. The officinal squill (*scilla maritima* of Linnæus) is now referred to the genus *ornithogalum.* This plant is allied to the onion, which it somewhat resembles: there are six stamens and a single style; the calyx is wanting, and the corolla is deeply divided into six segments: the root is a bulb almost as large as a man's head, and similar in form and structure to that of the onion; the stem upright, cylindrical, terminated by a long raceme of white flowers: the leaves appear after the flowers, and are all radical, very large, oval-lanceolate and fleshy. It grows on the sandy coasts of the Mediterranean. The bulb has a nauseous, bitter and acrid taste, but is destitute of any perceptible odour. It is poisonous to several animals, and, if much handled, produces ulcers on the skin. In large doses, it occasions vomiting, strangury, inflammation of the stomach and bowels, &c.; but in small doses, acts simply as an expectorant and diuretic. It has been much esteemed from antiquity, and its various preparations are much used in medicine.

SQUINTING. See *Optics.*

SQUIRREL (*sciurus*); a genus of quadrupeds, belonging to the *rodentia*, or gnawers, distinguished from most animals of the tribe by the compressed form of the lower incisors. The upper lip is cleft; the fur soft and silky; the molar teeth are four on each side of the lower jaw, and five in the upper, the first of which is only a small tubercle, often shed with age; the incisors are two in each jaw; the toes are armed with hooked nails, by means of which these animals are enabled to climb trees, among the branches of which they pass their lives, feeding on the fruit. Their light and graceful motions, their beauty and extreme neatness, have made them general favourites. When on the ground, they move by successive leaps, with the tail extended and undulating; but the forest is their home, and they display wonderful activity in leaping from branch to branch, sometimes stopping to listen, sitting erect upon their hinder limbs, with the tail elevated like a plume. In the same posture they take their food, using their fore-feet like hands. The hardest nuts serve them for nutriment, and the facility with which they cut through the shell is remarkable. They build nests of sticks and leaves, in the tops of trees, or sometimes in hollow trunks. Previous to the approach of winter, they lay up large hoards of nuts and grain for future use. When in captivity, they permit themselves to be handled, without ever appearing to distinguish the person who takes care of them, or experiencing any real attachment for him. In some districts, they multiply so exceedingly as to become a pest to the farmers, literally laying waste the cornfields: the woods and fields seem then to be alive with them, and sometimes they make partial migrations, during which, vast numbers are drowned in crossing rivers.

The fox squirrel (*S. vulpinus*) inhabits, exclusively, the pine forests of the Southern States of America, and is the largest species. The body is fourteen inches in length, and the tail sixteen. The colour is gray and black, or mottled, &c. *S. capistratus* is a variety having the nose white.

The cat squirrel (*S. cinereus*) is distinguished by its size and by the fur being less coarse in its texture. The length of the body is twelve inches, and of the tail fourteen; the colour cinereous above, and white beneath; the tail is less distichous than in the others, and stripped with black. There are four molar teeth only on each side of the upper jaw.

The gray squirrel (*S. Carolinensis*) is very common in most parts of the United States, especially in oak, hickory, and chestnut forests. Formerly, it was so abundant in many districts as to become a scourge to the inhabitants. It is remarkable for its beauty and activity, and, when kept in confinement, is exceedingly playful and mischievous. It is much smaller than the two preceding; the colour is usually fine bluish-gray, mixed with a slight tinge of orange, and the tail is edged with white. These three species often occur entirely black, and in this state have been described as a distinct species.

The great-tailed squirrel (*S. macrourus*) is the most common species on the Missouri. It is a large species, of a ferruginous colour, and has the tail larger than the others.

The red squirrel, chick-a-ree, or Hudson's bay squirrel (*S. Hudsonius*), is a beautiful species, very common in the Northern States. The ears are distinctly tufted; the colour is reddish-brown above, pale beneath, with a pretty distinct black line on each flank. It is smaller than the gray squirrel.

S. quadrivittatus is a very small species, inhabiting the vicinity of the Rocky mountains, about the head waters of the Platte and Arkansas. The general colour is reddish above, mixed with black, and whitish beneath, with four broad white lines on the back. It has not been observed to ascend trees, but nestles in holes, or on the edges of rocks; and the nest is composed of a most extraordinary quantity of different vegetable substances, sometimes sufficient to fill a cart. Its principal food seems to consist of the seeds of the pine.

The ground squirrel (*tamias lysteri*) has been separated from *sciurus*, on account of the presence of cheek-pouches; it differs also, somewhat, in its habits, as it makes a burrow, generally, about the roots of trees, or along fences and walls, often of considerable extent, and having several branches, and always two openings. It is one of the most familiar animals in the United States, and is usually seen running along fences and walls; but it occasionally ascends trees. On the back are five longitudinal black bands, separated on each side by two white ones. It is a very pretty and lively animal.

The common flying squirrel (*pteromys volucella*) differs from *sciurus* in having the skin on the sides very loose, and capable of being spread out when the limbs are extended, with the assistance of an additional bone articulated with the wrist. By means of this structure, the flying squirrels are enabled to make surprising leaps: taking advantage of the wind, they launch into the air, buoyed up as by a parachute, and sail swiftly and obliquely downwards. It is an exceedingly beautiful animal, very common in many parts of the United States. Another and larger species is found in Canada and about the Rocky mountains.

STAAL, Madame de, an ingenious French writer, first known as mademoiselle de Launai, was the daughter of a painter of Paris, where she was born, towards the close of the seventeenth century. Her father, being obliged to quit the kingdom, left her in great indigence; but some female recommendation procured her a good education at a priory in Rouen. Her patroness dying, she was compelled to hire herself as bed-chamber woman to the duchess of Maine. Unfit, however, for the duties of such an office, she was about to quit it, when a singular event rescued her from obscurity. A beautiful girl of Paris, named Tétard, was induced by her mother to counterfeit being possessed; and all Paris, including the court, flocking to witness this wonder, mademoiselle de Launai wrote a very witty letter on the occasion to M. de Fontenelle, which was universally admired. The duchess of Maine, having discovered the writer in the person of her waiting-woman, employed her, from that time, in all her entertainments given at Sceaux, and treated her as a *confidante*. Thus encouraged, she wrote verses for some of the pieces acted at Sceaux, drew up the plans of others, and was consulted in all. She was involved in the disgrace incurred by the duchess, her patroness, during the regency, and was kept two years a prisoner in the Bastile. On her release, the duchess found her a husband in M. de Staal, lieutenant in the Swiss guard, having previously refused the learned, but then too aged, Dacier. She died in 1750; and some Memoirs of her Life, written by herself, were soon after published in 3 vols., 12mo. They contain nothing of much importance, but are composed in a pure and elegant style, and are very entertaining. A fourth volume has since appeared, consisting of two comedies acted at Sceaux, entitled *L'Engouement*, and *La Mode*. This lady, who, even by her own description, did not abound in personal attractions, was, nevertheless, engaged in various gallantries or amours more or less sentimental. Being asked how she would treat such matters in her Life, "I will paint myself *en buste*," was the reply. Her Memoirs have been poorly translated into English.

STAAL, Madame de. See *Stael-Holstein.*

STABAT MATER; a celebrated Latin church song, in terzines, which is sung in the Catholic church, particularly on the festival of the Seven Sorrows of Mary, and generally during the services in Lent. Some consider one of the popes (John XXII., or one of the Gregories) as its author; but, according to the most probable opinion, it was written by the Minorite Jacobus de Benedictis, generally called Jacoponus, who lived in the thirteenth century, a learned jurist, whom the death of his wife induced to enter, in 1268, the order of the Tertiarii, and to give himself up to the severest penances, which terminated in insanity. He died in 1306. The words have received several changes. The best composers of church music have employed their talents upon it. The best compositions are those of Palestrina (for eight voices), of Pergolesi (for two voices, with an accompaniment) and Astorga. Among the later composers of this beautiful piece are Haydn, Winter, Neukomm, and Stunz (a very excellent composition). The *Stabat Mater* is one of those Latin songs of the early church which breathe a truly poetical and sacred enthusiasm, and cannot be generally known in this country. We, therefore, give it at length, as we have done the *Dies Iræ*.

Stabat mater dolorosa,
Juxta crucem lacrymosa,
  Dum pendebat filius;
Cujus animam gementem,
Contristatam et dolentem
  Pertransivit gladius.

O! quam tristis et afflicta
Fuit illa benedicta
  Mater Unigeniti.
Quæ mœrebat et dolebat
Et tremebat, cum videbat
  Nati pœnas inclyti.

Quis est homo qui non fleret
Christi matrem si videret,
  In tanto supplicio?
Quis posset non contristari,
Piam matrem contemplari
  Dolentem cum filio.

Pro peccatis suæ gentis,
Videt Jesum in tormentis,
  Et flagellis subditum;
Vidit suum dulcem natum,
Morientem, desolatum,
  Dum emisit spiritum.

Eia mater, fons amoris!
Me sentire vim doloris
  Fac, ut tecum lugeam.
Fac ut ardeat cor meum
In amando Christum Deum
  Ut illi complaceam.

Sancta mater! istud agas,
Crucifixi fige plagas
  Cordi meo valide.
Tui nati vulnerati,
Tam dignati pro me pati,
  Pœnas mecum divide.

Fac me vere tecum flere,
Crucifixo condolere,
  Donec ego vixero.
Juxta crucem tecum stare,
Te libenter sociare,
  In planctu desidero.

Virgo virginum præclara!
Mihi jam non sis amara,
  Fac me tecum plangere;
Fac ut portem Christi mortem,
Passionis ejus sortem,
  Et plagas recolere.

Fac me plagis vulnerari,
Cruce hac inebriari,
  Ob amorem filii.
Inflammatus et accensus,
Per te, virgo! sim defensus
  In die judicii.

Fac me cruce custodiri,
Morte Christi præmuniri,
  Confoveri gratia.
Quando corpus morietur,
Fac ut animæ donetur,
  Paradisi gloria.

STABIÆ. See *Herculaneum.*

STACCATO (Italian, *separated*), in music, is designated by a few small dots or dashes over the notes, which are then to be played more or less abruptly, and unconnected with each other.

STADIUM; an ancient measure of length, about equal to a furlong, or the eighth of a mile. It was six hundred feet in length; but, as the foot was different, the stadium, also, differed exceedingly. The most known measures of this name were the little stadium of Aristotle, of $19\frac{1}{3}$; the stadium of Cleomedes, of 13·91; the Pythian or Delphian, of 12·79; the stadium of Eratosthenes, of 11·64; that of Herodotus, or the nautical or Persian stadium, of 11·12; the Olympic, of 10·1; the Phileterian, of 9; and the great stadium (called, also, the Alexandrian or the Egyptian), of 8·35 to a geographical mile. The race-course of a gymnasium was, originally, called *stadium*, and was of a certain length, whence was derived the name of the measure. It consisted of an oblong causeway, open at one end, and terminated at the other by a semicircle. The two sides, running parallel with each other, were, likewise, enclosed: and from these three enclosed sides the seats of the spectators rose step-wise.

STADT; the German word for *town* and *city:* hence many geographical names are compounds of this word or *stad.*

STADTHOLDER, in the republic of the United Netherlands; the commander-in-chief of the military forces (Dutch, *stadhouder*, governor). The title was derived from the period when Spain and Burgundy had dominion in that country. The United Netherlands were then under a governor-general, and the separate provinces had particular governors. After becoming independent, the republic retained the office of stadtholder, partly from gratitude to the house of Nassau-Orange, but chiefly to secure the obedience of the people, which would not have been rendered to the states while their authority was new, and not yet confirmed. Philip II., on leaving the Netherlands, had intrusted the government of Holland, Zealand, and Utrecht, to William I., prince of Orange; but, when the duke of Alva arrived in the Netherlands, in 1567, at the head of the Spanish forces, with the purpose of spreading the Catholic faith by fire and sword, William retired to Germany to escape the threatening danger. But, being proceeded against during his absence, he took up arms to deliver the Netherlands from the tyranny of Alva. The first attempt failed; but, after the capture of Briel, in 1572, by the Gueux, fortune favoured the Dutch arms. Most of the cities of Holland and Zealand joined the prince against the Spaniards, and he was once more acknowledged royal stadtholder in Holland, Zealand, and Utrecht. Two years afterwards, the two first of these provinces committed the government to him during the war. But the powers of this government were extremely indefinite: orders were issued at one time in the name of the king of Spain; at another, in that of the gentry and cities; sometimes in the name of the prince of Orange and of the gentry and cities; and sometimes in the name of the prince alone. This fluctuation continued even after the accession of Utrecht (1579), till the authority of the king of Spain was wholly shaken off, in 1581. In 1582, the powers previously intrusted to the prince were renewed without restriction, and all public decrees and ordinances were issued in his name alone. At length, Holland and Zealand were on the point of formally investing him with the supreme authority, when he was assassinated, at the instigation of the Spaniards, in 1584. After the death of William, the states-general declared the earl of Leicester (who was sent with a body of troops by Elizabeth, queen of England, to aid them against the Spaniards) stadtholder. The states of Holland and Zealand, however, had conferred the government of their provinces on prince Maurice, second son of the murdered prince of Orange; and he was the first stadtholder who had been appointed by the separate provinces. When Leicester resigned the stadtholderate, Maurice was chosen, in 1590, stadtholder of Guelders, Utrecht, and Overyssel. He was succeeded by his brother Frederic Henry and his son William II., in the government of the five above-mentioned provinces. William Louis, count of Nassau, a son of the count of Nassau-Dillenburg, the younger brother of William I., was stadtholder of Friesland, and afterwards of Gröningen. He was succeeded in Friesland, after his death, by his brother Ernest Casimir, count of Nassau-Dietz; but Gröningen, and the province of Drenthe, elected prince Maurice, so that he was now governor of six provinces. After his decease, count Ernest Casimir was also elected by Gröningen and Drenthe. The next stadtholder in Friesland and Gröningen was his son Henry Casimir; and, after his decease, Frederic Henry, prince of Orange, attempted to unite the stadtholderate of these provinces with that of Holland, Zealand, Utrecht, Overyssel, and Guelders, which he already enjoyed. But he only acquired Gröningen, to which his son William II. succeeded. In Friesland, William Frederic, brother of count Henry Casimir, was made stadtholder; and, on the early death of William II. prince of Orange, he was likewise elected stadtholder of Gröningen. The government of both these provinces thenceforward devolved on the male posterity of William Frederic. In the five remaining provinces—Guelders, Holland, Zealand, Utrecht, and Overyssel—after the death of William II., the stadtholderate ceased. By his disputes with the states of Holland, he had made himself many enemies; and, by the artifices of John de Witt, grand pensionary of Holland, his son William III. was excluded from the stadtholderate by the act of exclusion agreed to by the province of Holland, in a treaty with Cromwell, in 1654, and in 1667 by the *perpetual edict*, as it was called. But, in 1672, when Louis XIV. attacked the united Netherlands, the Magistrates of the Dutch cities were forced, by popular insurrections, to repeal the perpetual edict, and to declare William III., prince of Orange, stadtholder. The same scene was acted over again in Zealand, Guelders, Utrecht and Overyssel; and, in these five provinces, the stadtholdership was declared to be hereditary in the male line of William III. He retained his authority after he was made king of England, in 1688. But, as he died without children, in 1702, the place was vacant for many years. In 1722, William Charles Henry Friso (a son of John William Friso, prince of Nassau and Orange, and stadtholder of Friesland and Gröningen) was elected stadtholder by the province of Guelders, Holland, Zealand, Utrecht and Overyssel retained their former government till 1747, when France invaded the lands of the generalty. The states of Zealand and Holland were now compelled, by a general insurrection, to appoint the above-named prince, William Charles Henry Friso, stadtholder, and Friesland and Overyssel soon followed the example. William IV. was thus the first stadtholder of all the seven provinces. The dignity was declared hereditary both in the male and female lines; but kings and electors, and all persons out of the pale of the Reformed church, were excluded, whether male or female. In case the stadtholderate should devolve upon a minor, the mother was to preside, under the title of *governess*, as long as she remained a widow and a resident of the states; and, in case of war, she was to have the privilege of nominating a general to the states. If the mother were absent, or not living, the states were to have the right of electing a guardian. On the death of William IV. he was succeeded by his son William V., then three years old, under the guardianship of his mother, a daughter of George II. of England, who, on the day of her husband's death, assumed the office of governess. She died in 1759, and Louis, prince of Brunswick, who had been, from 1750, field-marshal-general in the Dutch service, was chosen guardian of the young prince; and, in 1766, at the age of eighteen years, William took upon himself the discharge of his office.

The authority of the stadtholder was not the same in all the provinces; for he was appointed by each province separately, and received from them more or fewer privileges. With the general stadtholderate was connected the dignity of captain-general and admiral of the state; and his authority consisted in the exercise of sundry high privileges with regard to the affairs of government, and the military and naval forces. In regard to the former, he might appoint from a certain number of persons nominated by the states of a province various judicial and other officers, and could appoint and remove the magistrates of some cities, according to circumstances. This right he exercised, particularly in the provinces of Utrecht, Guelders and Overyssel, because they were excluded from the union in 1672, on account of their feeble opposition to the French, and, in 1674, were readmitted only on condition that the civil magistrates should be appointed by the stadtholder. In Holland, he had the right of advising in regard to the persons proper to be appointed to office. He presided, by virtue of his office, over the states-general and provincial assemblies, and had an important influence on the legislation. He administered, likewise, those parts of the executive government which most concerned the general interests. He had the right of pardoning criminals not guilty of murder or any heinous crime. By the terms of the union of Utrecht, he was also made umpire of all disputes between the provinces. It was his duty to defend the rights and immunities of the provinces and cities, to execute the laws and ordinances of the states, and to maintain peace and good order in the provinces. The military force was under his direction; for, as captain-general, he was commander-in-chief of the troops; and they were required to swear allegiance to the stadtholder as well as to the states-general and the provincial estates. He appointed all officers up to the colonel, and from a list presented to him, selected the governors of the forts. When at the head of the army, he might often appoint a general absolutely: but he could not undertake any campaign, or other military enterprise, without the consent of the states-general; and they often sent commissioners to the army, whose assent was requisite to every movement. He could station the troops, however, in the provinces and fortifications, wherever he pleased. As high-admiral, he commanded the naval force of the state, and presided over the college of admiralty, where he nominated his deputies, and performed many duties connected with the naval service. The tenth part of the spoil gained in naval actions belonged to his office; and, formerly, this was exceedingly valuable. These important rights, which, in many respects, amounted to sovereignty, were made still greater in 1747, by the institution of the general hereditary stadtholdership.

In 1748, William IV. was appointed by the states-general captain-general and admiral of the lands of the generalty. The East India company elected him their president—an office which no stadtholder had ever before enjoyed; and the West India company soon after chose him to a similar office. This gave him great influence in both, and the authority of the stadtholder became greater than ever before. His revenue was derived from numerous sources, and was very great; his court exhibited a royal splendour. In the war between France and Britain, in 1778 (the American war), in which the republic of the Netherlands became involved, the people grew dissatisfied with William V.; and he was accused of not protecting the Dutch ships from the violences of the British, of neglecting to use the navy of the republic to the best advantage during the war, and of encouraging and promoting its inactivity. The party which opposed him, and was made up of merchants and magistrates, attributed his conduct to the restrictions of the stadtholder's power. As William V. had married a niece of Frederick the Great, the court of Berlin advocated the rights of the stadtholder with the greatest zeal, and the Prussian ambassador at the Hague was instructed to provide expressly against their diminution. But the states, notwithstanding, stripped the stadtholder of his authority in the Hague, and suspended him from his office as captain-general. By the aid of Prussian troops, the contest at length turned in favour of the stadtholder. He recovered the rights and privileges which had been taken from him, and obtained the power of making such changes in the governments of the Dutch cities as secured him a majority. In 1788, the stadtholderate, with all its rights, was declared to be an essential part of the government of each province and of the whole republic of the Netherlands. The stadtholder and his wife took advantage to the utmost of the power thus put into their hands, and declared the brightest ornaments of the opposite party, the *patriots* (so called), incapable of holding any office. These measures induced many to leave the country, and filled those that remained with dissatisfaction. At the period of the revolution, France profited by this state of things. It declared war, not against the republic, but against the stadtholder; and, in 1794, after a slight resistance, Holland was occupied by the French, under Pichegru, and the hereditary dignity of general-stadtholder was abolished for ever. By the decree of the imperial deputation, in 1803, the hereditary stadtholder received indemnification in Germany; but, by the war of 1806 and 1807, he lost it again, and lived as a private man till 1813, when he was recalled, and, by a decree of the congress of Vienna, received the title of king. See *Nassau*, and *Netherlands.*

STAEL-HOLSTEIN, ANNA LOUISA GERMAINE NECKER, Baroness de, a highly gifted woman, who has been called the greatest female writer of all ages and countries, and who was certainly the most distinguished for talents among the women of her age. Since Rousseau and Voltaire, no French writer has displayed equal power. The favourable circumstances of her early life gave full developement to her mind. She was born at Paris, in 1766, and the elevation of her father (see *Necker*) to the ministry of finance, in 1777, brought him into close connexion with the most brilliant circles of the capital. Her mother, the daughter of a Swiss clergyman, a pious and sensible woman, somewhat given to metaphysical speculations, and rather stiff in her manners, directed at first the education of the lively girl, who early acquired habits of diligent application, and was accustomed to hear conversations above the comprehension of her age. Necker's house was the resort of the most distinguished men of the capital; and, like other ladies of the day, who made pretensions to literary taste, Mad. Necker assembled around her celebrated scholars, e. g., Raynal, Marmontel and Thomas. The encouragement to converse, which the young girl received in this society, and the various excitements which it furnished to her faculties, had an important influence on the formation of her mind. To these she owed that rare conversational power for which she was so remarkable, and her taste for intellectual contests, with an inclination to ingenious, brilliant and striking theories, which appears in her earlier works. Her lively spirit found much more satisfaction in the society of her father than in that of her mother. His character, in fact, was much more like her own, and he better understood how to act on her mind. His affection for her was mingled with a father's pride, and she was enthusiastically fond of him, while her respect for him bordered on veneration. Necker, however, never encouraged her to write, as he disliked female writers, and had forbidden his wife to occupy herself in that way, because the idea of disturbing her pursuits when he entered her chamber was disagreeable to him. To escape a similar prohibition, his daughter who early began to write, accustomed herself to bear interruptions without impatience, and to write standing, so that she might not appear to be disturbed in a serious occupation by his approach. When her father's *compte rendu* was published, in 1781, she wrote him an anonymous letter on the subject, which he recognised, by the style of thought, to be hers. In her fifteenth year, she made abstracts from Montesquieu's Spirit of Laws, accompanied with remarks: and at this time Raynal wished her to furnish a treatise on the revocation of the edict of Nantes, for his work on the Colonies and Commerce of the Europeans in the two Indies. Her earliest productions were Sophia, a comedy, written in 1786, and two tragedies, Lady Jane Grey, and Montmorency. Her *Lettres sur les Ouvrages et le Caractère de J. J. Rousseau*, which were printed in 1788, first attracted the public notice. In 1786, she was married to the baron de Staël-Holstein, Swedish ambassador at the French court, a man much older than herself, whose suit was favoured by Mad. Necker's desire that her daughter should marry a Protestant, and by the promise of his king to continue him in his post several years. Her heart, however, appears to have been given to the viscount de Montmorency, with whom she maintained a friendship during her life.

The breaking out of the revolution (1789) necessarily exercised a powerful influence, both on her mind and fate. She was early accustomed to take an interest in public affairs. Her youth was passed amid great events, which, although occurring in another hemisphere, hastened the crisis of the European states. The first period of her father's service in the ministry (1777—81) brought his family into connexion with the great world and public affairs, and political topics formed the chief subjects of conversation, even in the coteries of the ladies. Familiar with the views of her father, and with the liberal principles of several of the most distinguished French writers of the day, she was inspired with an enthusiastic love of liberty, and had expressed her feelings in her work upon Rousseau. "Neither her disposition nor her situation," says Mad. Necker de Saussure, a near relation and intimate friend of Mad. de Staël, "would allow her to be indifferent to the general agitation; since she was placed in the focus of its influence. She admired the constitution of Britain, as much as she loved France; and the thought of seeing Frenchmen as free as Britons, equal in all that was necessary to secure the rights and maintain the dignity of men, was her ardent wish; and with these views was connected the hope that her father would aid in this great work, and earn gratitude for his services; so that we need not wonder at her enthusiasm." She has related at length her share in the events of the time, in her posthumous work. Her father's banishment, in 1787, and his triumphant return, in 1788, deeply affected her; and when the storm became too fierce for him, and he was obliged to retire from public life, she saw with grief all her hopes disappointed. During Robespierre's ascendency, she exerted herself, even at the hazard of her life, to save the victims, and published a powerful and eloquent Defence of the Queen, who had always shown a dislike to her. After the insurrection of August 10, she delayed her departure from day to day, unwilling to provide merely for her own safety, while so many of her friends were in danger. On September 2, when the tocsin called the populace to riot and murder, she attempted to leave Paris, but was detained, and escaped the popular fury only by a remarkable concurrence of circumstances. She arrived safely at her father's house, which now became the refuge of the unhappy fugitives from the tyranny which preyed upon France.

When Sweden recognised the French republic, her husband was again sent as ambassador to Paris, whither she also returned, in 1795. The quiet which was restored with the government of the directory, gave her an opportunity of effecting the recall of some of the emigrants. Barras became her friend: and she acquired so much influence, that, on Talleyrand's return from America, in 1796, she obtained, through Barras, his appointment to the ministry of foreign affairs. To this period also belong two political pamphlets, *Sur la Paix*, and *Sur la Paix intérieure*, which contain her views respecting the situation of France in 1795, and express the remarkable opinion that France could arrive at limited monarchy only through military despotism. In 1796 appeared her work *De l'Influence des Passions sur le Bonheur des Individus et des Nations* (1796), which, though characterized by deep thought and enlightened views, does not contain any complete exposition of the subject.

Her domestic relations at this time were not happy. Her connexion with her husband, whose tastes were different, and whose talents were inferior to her own, had been, from the first, marked by coldness; and, when she became desirous of securing the property of their children from the effects of his lavish habits, a separation took place; but, his infirmities rendering the services of his friends necessary to him, she again joined him. He died in 1798, while on the way, in company with her, to her father's residence. The man who exercised so fatal an influence upon the rest of her life—Bonaparte—she had seen, for the first time, in 1797, on his return to Paris, after the peace of Campo-Formio. His brilliant reputation, which had inflamed the lively imagination of the French, also excited her admiration; but this sentiment soon gave way to fear and aversion. She formed the design of gaining him over to the cause of Swiss independence, when an invasion of Switzerland was in contemplation, for the purpose of raising money for the Egyptian expedition; but she soon saw that her plan could not succeed. The danger which threatened Switzerland led her to Coppet, where a French guard under Suchet was posted; but when Geneva was incorporated with France, she hastened back to Paris, to cause her father's name to be struck from the list of emigrants. Necker now seemed likely to pass the remainder of his life undisturbed. Bonaparte visited him before his passage over the Great St Bernard, and made a favourable impression upon him during a long interview, in which he spoke of his future plans. But some observations of Necker in his *Dernières Vues de Politique et des Finances* (1802), in which he spoke with freedom of the consular constitution, and mentioned Bonaparte's design of establishing a monarchy, and surrounding himself with a new nobility, offended the first consul, who had no wish to see his plans prematurely announced, and therefore caused the work to be attacked in the journals. By his direction, the consul Lebrun wrote a sharp letter to Necker, advising him not to meddle any more with public affairs.

Mad. de Staël was banished from Paris, under pretence that she had given her father false information of the state of France. During her banishment, she lived with her father at Coppet, but spent much time in travelling, and once (in 1806) passed some days secretly in Paris. Her literary reputation was meanwhile increased by her *De la Littérature considérée dans ses Rapports avec les Institutions sociales* (2 vols., Paris, 1802), and her *Delphine* (1802). The former work attracted many assailants, among whom Fontanes was the ablest and acutest. She had, indeed, over-estimated the influence of literature upon the character and happiness of men, and pronounced too confidently upon its history and prospects. Her romance *Delphine* contained a faithful picture of herself, as she was in her youth—a creature separated from the multitude by genius and sensibility, and struggling against the restraints of custom and her sex. Mad. de Staël, who never otherwise reverted to her earlier writings, found herself obliged to defend the moral tendency of *Delphine*, in a particular essay. In 1803, she made a visit to Germany, whence her father's sickness recalled her to Switzerland; but he died before she reached home. She always retained the greatest attachment and veneration for his memory. His death rendered her religious feelings more lively, and in this state of mind she wrote an admirable account of his domestic life, (prefixed to the *Manuscrits de M. Necker publiés par sa Fille*, 1805), which gives us much insight into her own character. To dissipate her grief, Mad. de Staël paid a visit to Italy in 1805; and from that time A. W. Schlegel, with whom she had become acquainted in Berlin, was her constant companion. (See *Schlegel.*) The fruit of her journey to Italy was *Corinne ou l'Italie* (1807), the most perfect and brilliant of her works, combining in a happy manner the charms of romance with a faithful picture of Italy. In 1810, she went to Vienna to collect materials for a work upon the manners, literature and philosophy of Germany, which she had planned on her first visit to that country. Many passages had been struck out from the manuscript of this work by the censors of the press; and no sooner was the impression completed, than the whole edition was seized by Savary, minister of police. It first appeared entire at London, in 1813, and was printed at Paris in 1814. This work is rich in acute and ingenious ideas, but has been justly criticised as containing many erroneous views. Mad. de Staël was now persecuted with more bitterness, and her exile from Paris was extended to banishment from France.

During her residence on her father's estate, she formed a new connexion about this time, which strongly illustrates the peculiarity of her character. A young officer from the south of France, by the name of de Rocca, who had distinguished himself by his bravery in Spain, rendered infirm by his wounds, came to reside at Geneva. Some expressions of sympathy which fell from Mad. de Staël made a deep impression upon him, and inflamed his heart and his imagination. "I will love her so passionately," said he, "that she will marry me at last." Circumstances favoured his wishes; Mad. de Staël, in the midst of her sufferings, had cherished the hope of consolation in a new union, and accepted the hand of the officer. The marriage, however, remained a secret till her death. While she wished to leave a place where she feared to involve others in her fate, she saw the dangers and difficulties of a flight, watched by spies and informers, and was reluctant to abandon the graves of her parents and her second country, and wander, like a criminal, by land and sea. But in the spring of 1812, the last moment when flight was possible, she resolved upon departure, having been already threatened with imprisonment if she left her residence for a day. She hastened through Vienna to Moscow, and, on the approach of the French army, went to Petersburg, and soon after, in the autumn of 1812, to Stockholm. Here appeared her work on suicide (*Reflexions sur le Suicide*), which she had just completed, and which points out to the unhappy the aids of religion and morality. In the beginning of the next year, she went to England, where she was received with the most flattering attention. After a long exile, the sufferings of which she has described in her *Dix Années d'Exil*, she landed at Calais, in 1814. The allied princes treated her with great distinction, and her influence contributed not a little to hasten the removal of the foreign troops from France. On the return of Napoleon, in 1815, she retired to Coppet. It is said that Napoleon invited her to return to Paris, that she might assist in the preparation of the new constitution, but that she refused, adding, "He has dispensed with the constitution and me for twelve years, and now he loves neither of us."

After the restoration, she received from the government public stock to the amount of two millions of francs, the sum which her father had left in the royal treasury, at the time of his dismission from office. Surrounded by a happy domestic circle—a beloved husband, an excellent son, and an amiable and highly accomplished daughter, who was united to a man of distinguished merit, the duke de Broglio—esteemed and courted by the most eminent men of the capital, and cheered with the hope of seeing her country's wounds healed by a free constitution, she lived in Paris, with the exception of a short absence, till her death. Until her last sickness, she was employed on her *Mémoires et Considérations sur les principaux Evénements de la Révolution Française* (Paris, 1819, 3 vols.) Few persons were more favourably situated than Mad. de Staël for appreciating the importance of the events of which she treated. She had three principal objects in this work—the justification of her father's public life, a faithful delineation of the course and character of the revolution, and a developement of the political principles, consonant to the spirit of the age. See the remarks on it in Bailleul's *Examen* (2 vols., 1819). The completion of this work was interrupted by her death. She had suffered much since the beginning of 1817, and in the summer of that year her disease took a decided character. Although reluctant to leave her friends, and dreading, as she said to her physician, the thought of the dissolution of her body, she was not afraid to die. To the last moment she retained her tranquillity, and expressed her hope of again meeting her father. "I think," she said one day, as if awaking from a dream, "I think I know what the passage from life to death is, and I am convinced that the goodness of God makes it easy; our thoughts become confused, and the pain is not great." In the morning of July 14, 1817, she replied to the question of her nurse, whether she had slept, "Soundly and deeply." These were her last words. Her body was embalmed, and deposited in the family vault at Coppet.

See the *Notice sur le Caractère et les Ecrits de Mad. de Staël*, by Mad. Necker de Saussure, prefixed to the complete edition of her works, published at Paris, in 1821, in 17 vols.; and Schlosser's *Parallel between Mad. de Staël and Mad. Roland* (in German and French, 1830).

The taste of Mad. de Staël is not altogether correct; her style is irregular, and has too much pretension; her attempts at effect and her occasional tendency to exaggeration sometimes mislead her judgment, and cause her to give a false colouring to facts. But in all her works we find original and profound thought, great acuteness, a lively imagination, a philosophical insight into the human heart, and into the truths of politics and literature.

Her son *Augustus*, baron de Staël, born 1789, died 1827, is favourably known by his *Notice sur M. Necker* (1820), and his valuable *Lettres sur l'Angleterre*. He left a son, the only descendant of Mad. de Staël.

STAFF (from the staff formerly borne by officers in high command), in military affairs, means generally the officers whose command extends over several bodies of troops, of which each has its particular officers. Thus the general staff (in French, *état majeur général*) is composed of the general, the chief and the officers of the staff, the commanders of artillery, and of the corps of engineers, and the heads of the different departments of military administration. The staff of a division comprises a lieutenant-general, major-generals, and the officers of the staff, of the artillery, engineers and administration. The staff of a regiment comprises the colonel, the superior officers, adjutant-majors, quarter-masters, &c. In England, the chaplain and surgeon of the regiment also belong to it. The military divisions, fortified places, &c., have their staffs composed in a similar manner to those of the armies. Under the French empire, the staff of the emperor had quite a peculiar organization, originating in his always commanding in person, and directing, in time of peace, the whole military machine personally. In Prussia, the staff is employed in preparing the maps of the kingdom, and in similar duties. In time of peace, the officers of the staff are attached in part to the various divisions of the army. In Austria, the staff is employed in the military topography of the empire; trigonometrical and geodesical operations; the military, geographical and statistical description of the provinces; in fortifications; in the care of the archives, &c. The British army has a very good staff, which has produced an excellent military map of the part of England along the coast from Portsmouth to the Thames. The corps is under the command of the quarter-master-general of the British forces. The officers employed in it are examined, and go through a course of studies. See *Force Militaire de la Grande Bretagne*, by Charles Dupin,

STAFF, BISHOP'S. See *Crosier*.

STAFFA; a small island of the Hebrides, belonging to Argyleshire, celebrated for its basaltic pillars and its natural caverns, particularly the cave of Fingal; seven miles north of Iona, five west of Mull. It is of an oval form, one and a half miles in circuit, presenting an uneven table-land, terminating nearly all round by cliffs of variable height. The greatest elevation is 144 feet. The surface is covered by a rich soil and luxuriant grass, affording excellent pasture for a herd of black cattle; but there is no house on the island. A considerable portion of the precipitous face of Staffa is in a columnar form: the highest point of this face is 112 feet above high-water mark. There are several

remarkable caves, as Great cave, 224 feet long; Boat cave, 150 feet long; Mackinnon's, or the Scart, or Cormorant's cave; and, above all, Fingal's cave, which is celebrated, by those who have visited it, in terms of high admiration. See *Fingal's Cave*, and *Hebrides*.

STAFFORD; the county-town of Staffordshire, England, is situated on the bank of the river Sow, six miles from its confluence with the Trent, 141 miles north-west by north from London. It is an ancient borough, having been incorporated by king John in the seventh year of his reign. Formerly it was surrounded by a wall, and defended by a castle, some remains of which still exist. The chief trade of Stafford consists in tanning leather and making shoes for exportation. The town is handsomely built, principally of stone. Population in 1831, 6,998. in 1841, 9,245.

STAFFORDSHIRE; a central county of England, bounded on the north by Cheshire and Derbyshire, on the east by Leicestershire, on the west by Shropshire, and on the south by Warwickshire and Worcestershire. Its length from north to south is about fifty-five miles, and its breadth from east to west about twenty-four. The northern part of Staffordshire, called the moorlands, is a rough mountainous tract, chiefly devoted to sheep pastures. The middle and southern parts are generally level and fertile. The principal rivers of the county are, the Trent, which is the third river in England, the Dove, the Stour, the Blythe, the Tame, and the Sow and the Penk, which last are all tributaries of the Trent. Navigable canals, forming branches of the Grand Trunk Canal, intersect the county. Coal abounds in various parts of Staffordshire, particularly in the Moorlands and the neighbourhood of Newcastle-under-Lyne, and from Cannock Heath the coal district extends southwards into Worcestershire. At Hanley is found a curious variety called peacock coal, from the irridescent colours on its surface. Other mineral products of Staffordshire are iron, lead, and copper ores, marble, limestone, freestone, potter's clay, alabaster, and red and yellow ochre; at Langley close a kind of carbonaceous matter or black chalk occurs in beds of gray marble; and near Himley Hall is procured a sort of reddish earth like French chalk.

The chief agricultural produce of this county consists of wheat, barley, oats, beans, and peas; buckwheat is sometimes cultivated, and also hemp and flax, but on a small scale; cabbages are grown extensively in some parts of the county, and also Swedish turnips. Near the river, and especially on the banks of the Trent, are fertile tracts of meadow-land, where cattle are fed for the dairy, and considerable quantities of cheese and butter are produced.

Staffordshire has long been famous for its potteries, which, owing to the great improvements in this branch of manufacture effected by Josiah Wedgwood, (see the articles *China* and *Wedgwood*) have vastly augmented the wealth and population of the district in which they are situated, and raised some formerly inconsiderable villages, as Hanley, and Stoke-upon-Trent, to the rank of market-towns. Some of the materials requisite for the prosecution of this manufacture are found here in abundance, as fire-clay, and coal, but the finer clays are procured from Purbeck in Dorsetshire, and other parts of that coast; and flints from the Kentish chalk-pits, and from Wales and Ireland. In the neighbourhood of Newcastle-under-Lyne are iron-works; Wolverhampton is noted for the manufacture of locks, edge-tools, and japanned ware; Walsall for sadler's ironmongery; various kinds of hardware are made at Pelsall, Sedgley, West Bromwick, and other places; and on the borders near Worcestershire are a number of large glass-houses. At Rocester, on the Dove, Fazeley, Tutbury, and elsewhere are considerable cotton-works; the manufacture of silk goods is carried on at Leek extensively; that of boots and shoes at Stafford; and the county is noted for the excellence of its ale, especially that which takes its name from the town of Burton-upon-Trent.

The county is divided into five hundreds, viz. Cuttlestone, Offlow, Pirehill, Seisdon, and Totmonslow. The only city is Lichfield; the boroughs are Stafford, Newcastle-under-Line, and Tamworth; and the market-towns, Burslem, Burton-on-Trent, Cheadle, Eccleshall, Hanley, Lane-end, Leek, Longnor, Rugeley, Stoke-upon-Trent, Stone, Uttoxeter, Walsall, Wednesbury, and Wolverhampton; the markets of Abbot's Bromley and Penkridge have become obsolete. Population of Staffordshire in 1821, 341,040; in 1831, 410,485. in 1841, 510,504.

STAG. See *Deer*.

STAGGERS. See *Stomach Staggers*, and *Sturdy*.

STAHL, George Ernest, a German physician and chemist, born at Anspach, in 1660, studied, at Jena, under Wedelius; and, in 1687, became physician to the duke of Saxe-Weimar. In 1691, he was chosen second professor of medicine at Halle, and rendered his name famous over all Germany by his academical prelections and his publications. He was, in 1700, elected a member of the *Academia Curiosorum Naturæ*. His fame procured him the appointment of physician to the king of Prussia, in 1716; and, going to Berlin, he died there, in 1734. Stahl was one of the most illustrious medical philosophers of his age: his name marks the commencement of a new era in chemistry. He was the author of the doctrine which explains the principal chemical phenomena by the agency of phlogiston; and though his system was, in a great measure, overturned by the discoveries of Priestley, Lavoisier and others, it nevertheless displays powerfully the genius of the inventor. This theory maintained its ground for more than half a century, and was received and supported by some of the most eminent men which Europe had produced. (See *Chemistry*, and *Oxygen*.) He was also the proposer of a theory of medicine, founded on the principle of the dependence of the state of the body on the mind; in consequence of which he affirmed that every action of the muscles is a voluntary effort of the mind, whether attended with consciousness or not. His principal works are *Experimenta et Observationes Chymicæ et Physicæ* (1731, 8vo.); *Disputationes Medicæ* (2 vols., 4to.); *Theoria Medica vera* (1737); *Fundamenta Chymiæ dogmaticæ et experimentalis* (3 vols., 4to.).

STAINER, or STEINER, Jacob; a famous maker of stringed instruments, near Hall, in Tyrol, about the middle of the seventeenth century, and a pupil of the famous violin maker Amati of Cremona. He made, principally, violins. They are rare, and bring 300 ducats apiece. He became insane towards the end of his life. He died in or before 1684.

STAIR, LORD. See *Dalrymple*.

STALACTITES are formed by the filtration of water, containing calcareous particles, through pores or fissures in the roofs of those caverns which are frequent in limestone. The water, having percolated through the roofs, remains suspended in drops. Evaporation commences at the exterior of the drop, and the calcareous particles are deposited on the roof of the cavern in the form of a little ring, which extends by degrees till a small tube is produced. The bore of this tube is, in most cases, diminished by successive deposits, till it becomes entirely closed; and the stalactite then increases by concentric layers applied to the exterior. Thus cylinders or cones are produced, and sometimes so enlarged that they unite with each other. While the stalactite is forming, a part of the water drops from it on the floor of the cavern, or trickles down the sides, and thus produces those calcareous concretions called *stalagmites.* When large, they are called *alabaster.* On the floor, they often form large masses, sometimes rising till they meet the stalactites pendent from the roof, and extending in all directions. A great variety of imitative forms are produced; hence a lively imagination will perceive, in these caverns, representations of the most diverse objects, especially by the light of a candle. The colour of stalactites is seldom pure white; it more frequently presents shades of yellow, red, or brown. Among the more remarkable foreign localities of stalactites are the grotto of Antiparos, in the Archipelago; Baumann's cave, in the Hartz; Pool's hole, in Derbyshire; the caves of La Balme, in Savoy; and of Auxelle, in Franché Comté. Fine specimens of alabaster are found in Spain, near Grenada, &c., in Italy, Sicily and Sardinia. The most beautiful alabaster employed by the ancients, is supposed to have been found in Egypt, in mountains west of the Red sea.

STALL. See *Prebend.*

STAMBOL. See *Constantinople.*

STAMFORD; a town of England, in Lincolnshire, situated on the banks of the river Welland, eighty-nine miles north by west from London. It is said to derive its name from the Saxon *stean* and *forde*, there having been formerly a kind of causeway where the river Welland was forded. The town is built in the form of a cross, the houses being generally of freestone, covered with slate. It contains six parish churches, and two or three meeting-houses. The other public buildings are, a town-hall, a theatre, and an assembly room. Stamford has several charitable establishments, the most opulent of which is that founded in the reign of Richard III., by William Brown. The trade of the place is principally in malt, coal, timber, and freestone. Population in 1831, 5837.

STAMMERING. See *Stuttering.*

STAMPED PAPER, for the purpose of raising a tax, is a Dutch invention. De Basville, or Baville, in his *Mémoires pour servir à l'Histoire de Languedoc*, affirms that stamped paper was introduced as early as the year 537, by the emperor Justinian; but Beckmann, in his History of Inventions, shows this opinion to be erroneous. The states of the United Provinces promised a reward for the invention of a new tax, which would press lightly on the subjects, and yet yield much to the government; and stamped paper was proposed. It was legally introduced, August 13, 1624, by the states, and was gradually imitated by other governments. In the year ending with 5th January, 1838, the stamps produced to the British government £6,432,153.

STANDARD, OR FLAG; originally, a signal, erected on a pole, spear or lance. Such signals were used for different purposes, and were known among the Hebrews as early as the time of Moses, and adorned with emblems. Ephraim carried a steer; Benjamin a wolf, &c. We find something similar among the Greeks; the Athenians had an owl, the Thebans a sphinx, on their standards, by the raising or lowering of which they gave the signal for attack or retreat. The standard of Romulus was a bundle of hay tied on a pole. In place of this, a hand, and, finally, an eagle, were substituted. The real standards, came first into use under the Roman emperors, who retained the eagle: they were also ornamented with dragons and silver balls. The standard of the cavalry consisted of a square piece of purple cloth, decorated with gold, on which the figure of a dragon was afterwards represented. The Germans fastened a streamer to a lance, which the duke carried in front of the army. From *band*, the name which this bore, comes our English word *banner* (*bandum*, *banderium*, *bandiera*). Afterwards, a large cloth was used, ornamented with emblems and inscriptions. The imperial French armies, in imitation of the Romans, had an eagle for an ensign, but of a different shape from the Roman eagle. See *Eagle.*

STANDARD OF MONEY; the degree of the purity or fineness of the metal contained in the coins of a particular country, and the quantity or weight of such metal contained in these coins. We have given a comparative view of the standard of money, in different countries, in the table contained in the article *Coins*, to which, and to the article *Circulating Medium*, we refer the reader. The alloy in coins is reckoned of no value: it is allowed to save the trouble and expense of refining the metals to the highest degree of purity, and to render the coins harder, and, therefore, less liable to be worn or rubbed. The standard is sometimes arbitrarily changed by governments, as a means of raising money, either by simply altering the denomination of the coins, without changing their weight or purity, or by issuing coins of baser metal, or by reducing the weight of the coin. But experience has taught that such changes are not only frauds upon the public creditor, and a source of confusion and distress to the people at large, but that they afford only a temporary relief to the public treasury, at the expense of new embarrassments. The present standard of the English coins has remained unchanged since the conquest, except for a period of sixteen years, from thirty-fourth of Henry VIII. to second of Elizabeth. That of the gold coins was changed in the eighteenth of Henry VIII.; previously to which the standard had been twenty-three carats three and a half grains fine, and one half grain alloy.* It was then fixed at twenty-two carats fine and two carats alloy. The former was called the old standard, the latter the new standard or crown gold, because crowns were first coined of it. The practice of making gold coins of both these standards was continued, however, till 1633, since which all the gold coined has been of the new standard. The coins of the old standard remained in circulation until 1732, when they were withdrawn. But the standard has been degraded by the reduction of the weight of the coin, so that a pound weight of silver, which, at the time of the conquest, was coined into twenty shillings, was, in 1601, coined into sixty-two, and, in 1816, into sixty-six shillings. In other countries, the degradation of the coin has been still greater. But it would far exceed our limits to give a detailed statement of the facts, which are, however, of great importance to readers of history.

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* The purity of gold is estimated by an Abyssinian weight called a *carat* (bean), which is subdivided into four parts, called *grains.* Gold of the highest purity is said to be twenty-four carats fine.

STANHOPE, James, first earl, was born in Herefordshire, in 1673, and accompanied his father, who was sent envoy extraordinary to the court of Spain early in William's reign. He continued in Spain some years, made the tour of France and Italy, served as a volunteer in Flanders, and received the commission of colonel at the age of twenty-two. He served as brigadier-general under the earl of Peterborough at the capture of Barcelona. In 1708, he was made major-general and commander-in-chief in Spain, and, the same year, he reduced the island of Minorca. In a subsequent campaign, in 1711, he was made prisoner, but was exchanged the following year. On the accession of George I., he was appointed one of the secretaries of state. In 1716, he attended the king to Hanover, where he was principally concerned in the formation of the alliance concluded with France and the States-general, which removed the pretender beyond the Alps. The next year, he was appointed first lord of the treasury and chancellor of the exchequer. In 1718, he became secretary of state, and was created earl Stanhope. He died in 1721.

STANHOPE, Philip Dormer. See *Chesterfield.*

STANHOPE, Charles, the third earl, was born in 1753. He received the early part of his education at Eton, and finished it at Geneva, where his genius led him to pay a close attention to the mathematics; and such was his progress that he obtained a prize from the society of Stockholm for a memoir on the pendulum. In 1774, he stood candidate for Westminster without success; but was introduced, by the earl of Shelburne, into parliament as a member for the borough of Wycombe, which he represented until 1786, when the death of his father called him to the house of peers. He was one of the many English politicians who regarded with pleasure the dawn of the French revolution; but, what was much more extraordinary in a peer by birth, he openly avowed republican sentiments, and went so far as to lay by the external ornaments of the peerage. He was also a frequent speaker against the war; and, although singular in many of his opinions, a strong vein of sense and humour often qualified his statements of peculiar views. As a man of science, he ranked high, both as an inventor and patron, and, among other things, was the author of a method for securing buildings from fire, an arithmetical machine, a new printing press, a monochord for tuning musical instruments, and a vessel to sail against wind and tide. He was twice married; first, to lady Hester Pitt, daughter of the first earl of Chatham, by whom he had three daughters; and, secondly, to Miss Grenville, by whom he had three sons. This scientific, ingenious, but eccentric nobleman, published several philosophical and a few political tracts. He died December 14, 1816.—Henry Philip Stanhope, the present earl, son of Charles, earl Stanhope, was born in the year 1781, and professed principles diametrically opposite to those of his father, against whom he even carried on a suit in equity. On the opening of parliament, in 1818, he made a speech, in which he recommended that France should be dismembered, to prevent her from troubling, in future, the tranquillity of Europe. In the investigation, with respect to the conduct of the late queen Caroline, his lordship voted against the bill of pains and penalties. His eldest son, known as viscount Mahon, is the author of a life of Belisarius, and of a History of the War for the Spanish Succession (1832).

STANHOPE, Lady Hester; an English lady, a niece of Pitt, famous for her singular mode of life. She has resided in Syria for about twenty years, living chiefly about eight miles from Sidon, at a villa of her own construction, called D'Joun. It is situated on a solitary mountain, remote from any village. Doctor Madden, who went to see her in 1827, gives the following account of his visit:—"Every thing without was wild and barbarous, and all within confessed the hand of taste. I was led from the court into a little garden, at the extremity of which there was a sort of kiosk, consisting of two rooms—a sitting room and a bed room—furnished, in the European style, with chairs and tables. The room into which I was ushered was in the Arab style; and at the farther corner I perceived a tall figure, in the male attire of the country, which was lady Hester herself. For seven hours there never was a pause in the conversation. Every subject connected with Oriental learning was discussed, and every observation of her ladyship's evinced a degree of genius that astonished me, and was couched in such forcible and energetic language as to impress me with the idea that I was conversing with a woman of no ordinary intellect. The peculiarity of her opinions in no wise detracted from the general profundity of her reflections; and, though I could not assent to many of her notions regarding astral influence and astrological science, I had no reason to alter my opinion of her exalted talents, though they were unfortunately directed to very speculative studies. Nothing is more difficult than to ascertain the point where eccentricity terminates and insanity begins: at all events, I am sure that whatever may be the eccentricity of lady Hester Stanhope, her mind is unimpaired, and that few women can boast of more real genius, and none of more active benevolence." Lady Hester showed doctor Madden a horse which she said was of the race of Solomon's favourite steed, saddled by the hand of God (there was an indentation in the back, resembling a Turkish saddle). The rich presents which she made to the Turkish pachas gave her a great influence over them for a time; but at the time of doctor Madden's visit, this was greatly diminished. The Bedouins, however, or wild Arabs, whom her wisdom and kindness had won, still continued to look up to her, not only as a benefactor, but as a being of a superior order. Her belief in magic and astrology may also have contributed to extend her influence. She is a woman of great personal bravery as well as moral courage, and has encountered the robbers of the desert at the head of her servants, sword in hand.

STANISLAUS I., king of Poland, was born at

Lemberg, in 1677. His family name was Leczinski, or Lesczinski, and his father held the important post of grand treasurer to the crown. He very early displayed indications of an amiable and estimable character, and at the age of twenty-two was intrusted with an embassy to the Ottoman court. In 1704, being then palatine of Posnania, and general of Great Poland, he was deputed by the assembly of the states at Warsaw to wait upon Charles XII. of Sweden, who had invaded the kingdom, with a view of dethroning Augustus of Saxony. (See *Augustus II.*) In a conference with the Swedish monarch, he so rapidly acquired his esteem, that Charles immediately resolved to raise him to the throne of Poland, which he effected at an election held, in the presence of the Swedish general, on the 27th of July, 1704, Stanislaus being then in his twenty-seventh year. He was, however, soon after driven from Warsaw by his rival Augustus; but another change brought him back to that capital, where he was crowned, with his wife, in October, 1705; and the next year Augustus was compelled solemnly to abdicate. (See *Charles XII.*) The fatal defeat of his patron Charles XII., at Pultowa, in 1709, again obliged him to retreat into Sweden, where he endeavoured to join Charles XII., at Bender, in disguise; but, being detected, he was held captive in that town until 1714. Being then suffered to depart, he repaired to Deux-Ponts, where he was joined by his family, and remained until the death of Charles XII., in 1719, when the court of France afforded him a retreat at Weissemburg, in Alsace. He remained in obscurity until 1725, when his daughter, the princess Mary, was unexpectedly selected as a wife by Louis XV. king of France. On the death of Augustus, in 1733, an attempt was made by the French court to replace Stanislaus on the throne of Poland; but, although he had a party who supported him and proclaimed him king, his competitor, the electoral prince of Saxony, being aided by the emperors of Germany and Russia, he was obliged to retire. (See *Poland*, and *Augustus III.*) He endured this, like every other reverse of fortune, with great resignation, and, at the peace of 1736, formally abdicated his claim to the kingdom of Poland, on condition of retaining the title of king, and being put in possession for life of the duchies of Lorraine and Bar. Thence forward he lived as the sovereign of a small country, which he rendered happy by the exercise of virtues which acquired him the appellation of "Stanislaus the Beneficent." He not only relieved his people from excessive imposts, but, by strict economy, was able to found many useful charitable establishments, and to patronise the arts and sciences. He was himself fond of literature, and wrote some treatises on philosophy, morals and politics, which were published under the title of *Œuvres du Philosophe bienfaisant* (4 vols., 8vo., 1765). He died in 1766.

STANISLAUS II., Poniatowski, king of Poland. See *Poniatowski, Stanislaus.*

STANITZA (*village, place of encampment*); a word found in numerous Russian geographical names belonging to the regions inhabited by the Cossacs.

STANNARIES, Court of. See *Courts.*

STANZA (Italian, a *stand*); a strophe or number of verses connected with each other, terminating with a full point or pause, and forming one of the regular divisions of a poem. It was formerly sometimes used to denote an entire lyric poem of one strophe. Thus Dante speaks in his work *De vulgari Eloquentia* (book ii. chap. 3 et seq.) of *cantiones* (*canzoni*) and of *stantii* (*stanze*). Stanzas are said to have been first introduced from the Italian into French poetry, about the year 1580, and thence passed into English. The principal Italian stanza—the *ottava rima*—originated in Sicily, where poets made use of it even in the thirteenth century; thence it passed into Italy, and there received, in the fourteenth century, from Boccaccio, that regular form which it has ever since retained, as the standing division of the Italian epic. Boccaccio first made use of it in his *Theseide.* Politian improved it further. Trissino, in the sixteenth century, wrote a narrative poem in blank verse, but had no imitators, The *ottava rima*, or stanza of Boccaccio (as we may call it, in contradistinction to the Sicilian, which forms a continued chain of alternative rhymes, without the double rhyme in the two last lines), consists of eight iambic verses of eleven syllables each, with female rhymes, of which the six first are alternate, but the two last are successive, and thus give to the whole an agreeable conclusion. These two last lines, however, easily seduce the poet into attempts at pointed expression, unbecoming a serious epic, and from which even Tasso is not always free. Boiardo, and particularly Ariosto and Tasso, are the great masters of the *ottava rima.* Göthe, Schlegel, Tieck and others have used it with great success in German, with the change required by the genius of the German language, viz. that they employ male and female rhymes in the first six lines, but the two last always end with female rhymes. For the *Spenserian* stanza, see *Spenser.*

STANZE. See *Raphael*, and *Vatican.*

STAPLE; a public market, whither merchants are obliged to carry their goods for sale. Various derivations have been suggested; as, 1. staples, found in the Ripuarian laws, and signifying a place where justice is administered; 2. the German *stapelen*, to put in a heap: 3. *stabile emporium* used in the civil law style of former times, and signifying a fixed post. Formerly the merchants of England were obliged to carry their wool, cloth, lead, and other like staple commodities, to particular places, in order to utter the same by wholesale. *Merchants of the staple* was the denomination of the most ancient commercial society of England, from their exporting the staple wares of the kingdom. It is said to have originated in 1248. In 1336, the staple of wool was fixed in Brabant; in 1341, at Bruges: and, in 1348, at Calais. In 1353, it was removed from Bruges to several English and Irish towns. Calais, however, still remained a staple. In the staple towns courts of law-merchant were established for determining all mercantile disputes and for punishing offenders.

STAPSS, Frederic, born March 14, 1792, son of a Protestant clergyman at Naumburg, in Thuringia, undertook to assassinate the emperor Napoleon, because he supposed him to be the author of the misfortunes of Germany. With this design he went to Vienna, remained ten days, and on October 23, 1809, travelled to Schönbrunn, where Napoleon was reviewing his forces. The emperor stood between Berthier and Rapp when the youth advanced, and desired to speak with Napoleon. Rapp directed him to wait till after the muster. But, being struck with the look, the voice and the bearing of Stapss, he ordered him to be imprisoned in the castle. Here a large case-knife was found upon him, and the portrait of a young female. Rapp, who spoke German, asked him his name, and why he carried a knife. "I can tell no one but Napoleon himself." "Do you intend to murder him with it?" "Yes, sir." "For what reason?" "I can answer this question to none but himself." The emperor then commanded the young man to be brought before him. Bernadotte, Berthier, Savary, Duroc and Rapp were present. With an air of calmness, and his hands bound behind his back, the youth came into the presence of the emperor, and respectfully bowed to him. Napoleon asked him, through Rapp, the following questions: "What is your place of residence?" "Naumburg." "Who is your father?" "A Protestant clergyman." "How old are you?" "Eighteen years." "What did you intend to do with your knife?" "To kill you." "You are beside yourself, young man: you are an Illuminé." "I am not beside myself; I do not know what an Illumine is." "You are sick, then." "No, I am not; I am perfectly well." "Why did you mean to kill me?" "Because you have injured my country." "Have I ever wronged you?" "You have injured me in common with all the Germans." "Who sent you? Who urged you to this crime?" "No one: the conviction that I should do a great service to my country and to all Europe by putting you to death, was my motive." With the same calmness, Stapss replied to all the emperor's interrogatories. Corvisart, Napoleon's physician, was called to feel the pulse of the young man. "Is it not true, sir, that I am not sick?" "The young man is well," said Corvisart, addressing the emperor. "I said so," observed the youth. "Your head is disordered," continued the emperor; "you will make your family unhappy. I will spare your life, if you acknowledge your crime and ask my pardon." "I wish for no pardon. I deeply regret the failure of my plan." "Whose was the portrait found on you?" "It was that of a young person, whom I love." "She will be greatly afflicted by your enterprise." "She will be pained at its ill success. She hates you as much as I do." "If I pardon you, will you thank me for it?" "It shall not prevent my killing you, if an opportunity offers." Stapss was led away, and general Lauer appointed to question him further, to discover whether he had any associates. The youth firmly maintained that no one was acquainted with his undertaking. He was shot, October 27, at seven o'clock in the morning. He had taken no nourishment since the 24th. Food was offered him, but he refused to eat. He said that he was strong enough to go to the place of execution. See Rapp's *Memoirs.*

STAR. See *Fixed Stars*, *Constellations*, and *Planets.*

STAR, FALLING OR SHOOTING. See *Falling Stars*, *Fireballs*, and *Meteors.*

STAR OF BETHLEHEM (*ornithogalum umbellatum*). This plant is sometimes called *eleven o'clock*, from the circumstance of the flowers opening at about that time in the morning. It is allied to, and somewhat resembles, the onion. The root is a bulb; the leaves are linear, and all radical; the stem six or eight inches high, and terminated by a corymb of six or eight white and star-like flowers: these last are very evanescent, and close four or five hours after expansion. The plant grows wild in Europe, and is sometimes cultivated in gardens for ornament.

STAR-CHAMBER (*camera stellata*); a room in the house of lords, so called from having its ceiling adorned with gilded stars, or, according to some, because it was originally the place of deposit of the Jewish starrs (*starra*) or covenants. The despotic tribunal, which sat here, was also called the *star-chamber.* It was under the direction of the chancellor, and had jurisdiction of forgery, perjury, riots, maintenance, fraud, libel and conspiracy, and, in general, of every misdemeanour, especially those of public importance, for which the law had provided no sufficient punishment. It was this criminal jurisdiction (its civil having gone into disuse) that made it so powerful and odious an auxiliary of a despotic administration. Its process was summary, and often iniquitous, and the punishment which it inflicted, often arbitrary and cruel. It became particularly violent in the reign of Charles I.; and it was abolished, with the no less hateful high commission court, by the long parliament, in 1641. Its fall was an important step in the progress of English liberty.

STARBOARD; the right side of a ship, when the eye is directed forward.

STARCH is a white, insipid, vegetable substance, insoluble in cold water, but forming a jelly with boiling water. It exists chiefly in the white and brittle parts of vegetables, particularly in tube-rose roots, and the seeds of gramineous plants. It may be extracted by pounding these parts and agitating them in cold water, when the fibrous parts will first subside, after which the starch will gradually precipitate itself in a fine white powder; or the pounded or grated substance (as the roots of arum, potatoes, acorns, or horse-chestnuts, for instance) may be put into a hair-sieve, and the starch washed through with cold water, leaving the grosser matters behind. Farinaceous seeds may be ground and treated in a similar manner. Only seeds require to have the oil expressed from them before the farina is extracted. In starch-making, the farina ferments and becomes sour; but the starch that does not undergo fermentation is rendered more pure by this process. Some water, already soured, is mixed with the flour and water, which regulates the fermentation, and prevents the mixture from becoming putrid; and in this state it is left about ten days in summer, and fifteen in winter, before the scum is removed and the water poured off. The starch is then washed out from the bran, and dried, first in the open air, and finally in an oven. When starch is triturated with iodine, it forms combinations of various colours. When the proportions of iodine are small, these compounds are violet; when somewhat greater, blue; and when still greater, black. We can always obtain the finest blue colour by treating starch with an excess of iodine, dissolving the compound in liquid potash, and precipitating by a vegetable acid. The colour is manifested even at the instant of pouring water of iodine into a liquid which contains starch diffused through it. Hence iodine becomes an excellent test for detecting starch, and starch for detecting iodine. Starch is convertible into sugar by dilute sulphuric acid. To produce this change, we must take 2000 parts of starch, diffuse them in 8000 parts of water, containing forty parts of strong sulphuric acid, and boil the mixture for thirty-six hours in a basin of silver or lead, taking care to stir the materials with a wooden rod, during the first hour of ebullition. At the end of this time, the mass, having become liquid, does not require to be stirred, except at intervals. In proportion as the water evaporates, it ought to be replaced. When the liquor has been sufficiently boiled, chalk and animal charcoal are added, and it is clarified with white of egg. The whole is then filtered through a flock of wool, and the clear liquid is concentrated, till it has acquired a sirupy consistence. After this, the basin is removed from the fire, in order, that, by cooling, its sulphate of lime may be precipitated. The pure sirup is now decanted, and evaporated to the proper dryness. It is found, also, that sugar may be obtained from starch without the use of sulphuric acid. It is obtained by leaving the starch, first brought to the pulpy state, to itself, either with or without the contact of the air, or by mixing it with dried gluten. At the same time, however, other products are obtained; viz. 1. a gum like that from roasted starch; 2. amydine, a body whose properties are intermediate between those of starch and gum; and, 3. an insoluble substance, like ligneous matter. Twelve parts of boiling water and one of starch, fermented by dry gluten, yielded,

	Without contact of air.	With contact of air.
Sugar,	47·4	49·7
Gum,	23·0	9·7
Amydine,	8·9	5·2
Amylaceous lignin,	10·3	9.2
Lignin with charcoal,	a trace	0·3
Undecomposed starch,	4·0	3·8

Potato starch differs considerably from that of wheat. It is more friable, is composed of much larger sized grains, forms a jelly with water at a lower temperature, and is less readily decomposed by spontaneous fermentation. Starch is composed of carbon 43·48, oxygen 49·45, hydrogen 7·06. Doctor Prout considers starch as sugar partly organized; for it has the same essential composition, but differs in containing minute portions of other matter, which, we may presume, prevent its constituent particles from arranging themselves in the crystalline form, and thus cause it to assume totally different sensible properties. When starch is roasted at a moderate heat in an oven, it is converted into a species of gum, employed by calico printers; potato starch answers best for this purpose. *Salop* is composed of a little gum, very little starch, and much of a kind of gum called *Bassorine*. *Sago* is an uniform substance, soluble in cold water, more so in hot, precipitated blue by iodine, and differing from common starch only in the first mentioned property. *Tapioca* seems to be identical with sago. *Arrow root* is nearly pure starch, agreeing in all respects with the starch of potato, which may be converted by heat into something similar to sago and tapioca.

STARLING (*sturnus*). The colour of the common European starling is blackish, with blue, purplish, or cupreous reflections, and each feather is marked at the extremity with a whitish speck. The beak is long, straight, entire, somewhat flattened and obtuse at the extremity; the tail shorter than in our blackbirds. It is found in almost all parts of Europe, and, except in the breeding season, lives in numerous flocks, retiring in the evening to marshes, to pass the night among the reeds. The flight of these birds is peculiar: they form a sort of vortex while advancing. During the day time, they disperse throughout the fields, and seem particularly fond of the company of cattle. They are often kept in cages, and learn to whistle some tunes, and even to pronounce words and sentences.

STAROSTS, in Poland; those noblemen who were reckoned among the dignitaries of the land (*dignitarii terrarum*), and who received a castle or landed estate from the crown domains (*mensa regia*). The starosty was granted only for the life of the occupant, on whose death, however, the king was obliged to grant it anew. Some of the starosts had civil and criminal jurisdiction over a certain district (*grod*); others (*tentuarii*) merely enjoyed the revenues of the starosty.

STATE (*respublica, civitas, societas civilis*); a body politic; an association of men for political ends, the object of which is well expressed in the term *common-wealth* (i. e. common good). Experience, as well as reason, shows that the isolated individual can attain but very imperfectly the ends of his being, and instinct early led men to form unions, for promoting the good of each by the power of all. Such a union is a state, and may be called the natural condition of man, because essential to the full development of his faculties. Separated from society, he remains a brute. So true is the ancient definition of man as being a political animal, though it may have been taken, when first used, in too narrow a sense. (See the beginning of the article *Slavery*.) The right of men to form states being thus obvious from their nature, the next questions which arise are, What is the historical origin of states? and what is the best state, or best government? History shows, that states have been formed in a great variety of ways, by the violence of one or many, by artifice, by contract, &c. (See the articles *Political Institutions, Sovereignty, Estate, Legitimacy;* also *Communities, Cities, Corporations, Land, property in.*) As to the other question, that state is the best, which is best adapted to promote the general good; so that the organization of such a state may, and must, differ according to circumstances. This fact is overlooked by those who treat the organization of a state merely as a matter of abstract speculation, and, on the other hand, is often used as a pretext for retaining abuses diametrically opposed to the true objects of political society. It should never be forgotten, that the form of government, important as it is, is merely a means of obtaining the great objects of the state; and the first objects to be provided for are security and good order, to which all forms must be made to yield. These terms include much more than the mere protection of individuals against violence on the part of each other—a sense to which none but despotic governments would limit the words.

STATE ADVOCATE. See *Advocate of the Crown*.

STATEN ISLAND is situated south of the city of New York, the centre of it being distant from the city eleven miles. It constitutes the county of Richmond, and is the most southern land belonging to New York. Its length is fourteen miles, and its greatest breadth eight miles. Its southern extremity is in lat. 40° 29′ N.; its western extremity is 18′ west longitude from New York; population in 1830, 7084.

STATES-GENERAL. See *Netherlands*.

STATES OF THE CHURCH. See *Church, States of the.*

STATICS. See *Dynamics*, and *Mechanics*.

STATISTICS. The past, in all its extension, belongs to history; the present to geography and statistics. Schlözer said with much truth, "History is statistics in a state of progression; statistics is history at a stand." The subject of statistics is the investigation and exposition of the actual condition of states and nations, in regard to their internal organisation and foreign relations. The description of the face of the country belongs to geography. Statistics is often considered in too confined a view, as if it had to treat only of those particulars in the condition of a country which can be reduced to numerical calculation, and exhibited in tables, such as the number, employments and wealth of the people. The frequent reference to "statistical tables," and the frequent use of the phrase, may be in part the occasion of this.

A full, statistical view of the actual condition of a people requires the exhibition, 1. of the physical character of the country and the parts composing it, in regard to situation, boundaries, extent and soil, mountains, woods, rivers, climate; also of the numbers and national diversities of the people; their extraction, languages, &c.; the classes into which they are divided (nobility, free proprietors, bondsmen, slaves, officers, merchants, manufacturers, farmers, mechanics, soldiers, &c.); and their religious differences (the various sects, &c.): 2. of the degree of civilization shown in the state of the useful arts and occupations (agriculture, mechanical and manufacturing industry, commerce); in the institutions for the promotion of the fine arts; in the schools, universities, scientific academies, sale of books, &c.; in the manners of the people, and their conduct in all their important relations, moral, political and religious: 3. of the form of government, whether monarchical or republican, despotic or limited; whether there be a popular representation or an assembly of the estates whether the representation is in one or two chambers; whether the representatives take part in legislation, or merely in the imposition of taxes; whether there is a responsibility of the ministers, and none of the monarch, &c; also of the relations of church and state (whether any exist, and, if so, whether the hierarchical or territorial system prevails; whether there are concordates with Rome); likewise of the family of the monarch, where one exists, the age, religion, &c., of the members, the family laws of the ruling house, the court, and the laws relating to it, the military orders, &c.: 4. of the administration of the state (including all the temporal and spiritual authorities, &c., in particular the departments of justice, police, finances, the army and navy).

In treating of the foreign relations of the state, this science shows, 1. the standing of the particular state (if it be in Europe) as to the other members of the European family, whether it be a power of first, second, third or fourth rank, and particularly its relations to its immediate neighbours (thus, in treating of German states, it would show their relations to the whole confederacy; so likewise with the Helvetic cantons and the American states): 2. the reciprocal influence of its domestic and foreign politics: 3. of the existing treaties with foreign states, indicating the sources of information respecting them, their most important points, and their beneficial or injurious consequences. According to the example of some distinguished statistical writers (e. g. Hassel, in the statistics of Austria and Russia; Stein, in those of Prussia, and others), a view of the gradual increase or decrease of the state, in respect to extent, population, &c., may be given advantageously.

Statistics differ from geography in this respect, that, though many particular facts belong equally to both, yet geography arranges them always on the principle of locality, but statistics with reference to their effect on the general condition of the nation. Thus geography mentions the mountains, rivers, woods, in describing the districts where they are found, or speaks of their distribution, to give a view of the face of the country: statistics treats of them collectively, with a view to their political importance, as affecting the productiveness of the country, favouring or obstructing communication, &c. In a military description, the same subjects would be treated with particular reference to their military importance. Geography treats also of manufactures, commerce, trade, public authorities, universities, schools, seminaries, museums, &c., in describing the places in which they are situated; but statistics combines them, with a view to arrive at scientific results. Statistics, in modern times, has often been mixed with geography, in some cases advantageously to the immediate purposes in view, but in many to the disadvantage of science and sound knowledge.

Statistics was first scientifically treated in Germany: Achenwall gave it, in 1749, its name and systematic form. Since his time, it has become more and more separated from geography and history, and has been cultivated independently of them; but even before him, authors had scientifically combined statistical materials; for instance, some Italians, as Sansovino Botero; some Frenchmen, as d'Avity; and particularly Germans, as Conring, Oldenburger, who died in 1678, at Geneva, the author of *Thesaurus Rerum publicarum* (4 vols., Geneva, 1675); Gastel, in his *De Statu publico Europæ novissimo* (Nuremberg, 1675, folio); Von Zech, in his European Herald (3 vols., Leipsic, 1705, folio, in German), and several others; Dutchmen, as De Luca, in his *Descriptio Orbis*, &c. (Leyden, 1655); and Everhard Otto, in his *Primæ Lineæ Notitiæ Europæ Rerum publicarum* (Utrecht, 1762). Following Conring's example, Achenwall delivered university lectures on statistics. His *Staatsverfassung der Europäischen Reiche im Grundrisse*, passed through seven editions. Several other manuals appeared. To the department of the theory and history of statistics belong Gatterer's Idea of Universal Statistics (Göttingen, 1773); Schlözer's unfinished Theory of Statistics (Göttingen, 1804); Niemann's Sketch of Statistics, (Altona, 1807); and a vast number of other works. Among the statistical manuals are Hassel's Complete Manual of the most recent Geography and Statistics, and Stein's Manual of Geography and Statistics (4th ed., 1819). Among the living statistical writers of Italy are Balbi, Quadri and Melch. Gioja. The statistics of crime have been most attended to in France and England. The French writers have paid particular attention to comparative statistics; for example, baron Dupin, a statistical writer of the first order; also the Italian Gioja, in his *Filosofia della Statistica* (2 vols., 4to., Milan, 1826, et seq.). Meusel published a Literature of Statistics (2d edition, 2 vols., in German).

Statistical tables may lead, and have led, to incorrect notions, when the bare results are considered, without reference to the causes and accompanying circumstances, but when used with due caution, they are of the highest importance. The influence of the study of statistics has been incalculable: it is the test and the basis of the principles of political economy, and has mainly contributed to that knowledge of the condition and interests of nations which distinguishes our time. Every nation will find its interests essentially promoted by cultivating and making public its own statistics; and writers like Dupin are public benefactors.

Among the best statistical works are Hassel's Statistical Sketches of all the European States

(1805, 2 vols.); his Statistical Tables, comprising a view of all the European States, and some others; his General Geographico-Statistical Lexicon (Weimar, 1827); and his Genealogical, Historical and Statistical Almanac (an annual); Crome's works; Stäudlin's Ecclesiastical Geography and Statistics (2 vols., Tüb., 1804); Herbin and Peuchet's *Statistique de la France* (7 vols., Paris, 1803); Dupin's *Forces productives et commerciales de la France* (Paris, 2d vol., 4to., 1832); Colquhoun's Treatise on the Wealth, Power and Resources of the British Empire (London, 1814, 4to.); Sir John Sinclair's Statistical Account of Scotland, 21 vols., 8vo., vid. *Sinclair;* Dupin's *Voyages dans la Grande-Bretagne* (1820); Wichmann and Hassel's works on Russia; and J. H. Schnitzler's *Statistique et Itinéraire de la Russie* (Paris and Petersburg, 1829); Von Hammer and Lindner's works on Turkey; Bisinger's, Hassel's, Demian's, André's, on Austria; Schwartner's, on Hungary; Mirabeau's, Krug's, Demain's, Stein's, on Prussia; Thaarup's work on Denmark; Pölitz's, on Saxony.

STATIUS, PUBLIUS PAPINIUS; a Roman epic poet, born at Naples, in the reign of the emperor Domitian (A. D. 61), and educated by his father, a rhetorician. His principal productions are two epic poems, the *Thebais,* in twelve books, and the *Achilleis,* in two books. The last is unfinished. The style of Statius is bombastic and affected, often exhibiting the art of the declaimer rather than that of the poet; but he attracted general admiration in his own time, and even some modern critics have considered him as inferior only to Virgil. He wrote some shorter poems, called *Sylvæ,* which have been distributed into four books; and some of these compositions are eminently beautiful. Statius is supposed to have been destitute of fortune, as he is said to have supported himself by writing for the stage; but none of his dramatic compositions are extant. He died about the hundredth year of the Christian era. Among the best editions of the works of Statius are those of Barthius (1664, 2 vols., 4to.), and the Variorum, Lugd. Bat. (1671, 8vo.); of the *Thebais* separately, that of Warrington (1778, 2 vols., 12mo.), and of the *Sylvæ,* that of Markland (London, 1728, 4to.).

STATUE (from the Latin *statua*). Statues are divided into ideal and portrait statues (*statua iconica:* this term also signified a statue of the natural size). The former, in respect to invention, are much superior, and reach the highest point of the art, when, as in Greek antiquity, they represent divine beings, serene, and superior to all sensual impulses. The latter have all the qualities of portraits (q. v.) except colouring. In Greece, such statues were given to those who had been thrice victorious in the Olympic games. Portrait statues seem to have been first set up in Athens to the memory of Harmodius and Aristogiton, the avengers of liberty and destroyers of the Pisistratidæ. At first, the Greeks seem to have made no statues but those of the gods; but, in later times, and especially during the decline of the Roman republic, when servility and adulation became more and more common, a great number of portrait statues were produced. Gods and monarchs were originally represented of a colossal size; and, in general, the size of the statues, with the ancients, had a symbolical meaning. Originally, statues were coloured. The Romans called statues in Greek costume, *statuæ palliatæ*; in Roman costume, *togatæ,* &c. There were *statuæ pedestres* (on foot), *sedentes* (sitting), *equestres* (on horseback), and *curules* (driving; and these, again, *bigatæ, quadrigatæ,* in which way many deities and triumphant generals were represented). Sometimes whole groups were and are exhibited, as the Laocoön; but, in these, the figures were generally distinct, except in those which represented figures intertwined with each other (*symplegmata,* as in the case of groups of wrestlers). Statues were often used by the ancients to ornament buildings, &c. (As to the material employed, see *Plastics,* and *Sculpture.*) The most celebrated statues are mentioned in the article *Sculpture.*

STATUTE: an act of the legislature of a state; a positive law. *Statute* is commonly applied to the acts of legislative bodies, consisting of representatives. In monarchies not having representative bodies, the acts of the sovereign are called *edicts, decrees, ordinances, rescripts.* Statutes are distinguished from common law. The latter owes its force to the principles of justice, to long use, and the consent of a nation; the former to a positive command, or declaration of the supreme power.

STAUBBACH, FALLS OF. See *Cataract.*

STAUDLIN, CHARLES FREDERIC, doctor and professor of theology at Göttingen, was born in 1761, at Stuttgart, and early began his History and Spirit of Scepticism, particularly in respect to Morality and Religion (which appeared at Leipsic, 1794). He travelled in Switzerland, France and England, and was appointed *professor extraordinarius* at Göttingen, in 1790, where he became doctor of theology in 1792. His writings are very numerous, and the latter ones have been charged with the faults often attending too great fertility. He died in 1826. His works are a Manual of the Extent, Method and History of Theological Sciences (Hanover, 1821); Ecclesiastical Geography and Statistics (Tübingen, 1804); Contributions to the Elucidation of the Prophets of the Old Testament (Stutgart, 1786); continuation of the same (Göttingen, 1791); Origin, Contents and Construction of Solomon's Song, in Paulus's *Memor*; Essay towards a Criticism of the System of the Christian Religion (1791); Sketch of Academical Lectures on Morals and Dogmatics for future Teachers of the Christian Religion (2 vols., 1798—1800); Text-Book of Dogmatics, and the History of Dogmas (3d edition, 1809): Outlines of Philosophical and Biblical Morals (an academical text-book, 1805); New Text-Books of Morals for Theologians, with Introductions to the History of Morals and moral Dogmas (1813); Practical Introduction to the Books of the Sacred Scriptures (1826); a History of the Ideas which have been entertained respecting the Morality of Theatres, the Doctrine of Suicide, Conscience, Oaths (1824), and Friendship (1826); a History of Rationalism (1826); a History of the Ethics of Jesus (4 vols., 1799—1823); Outlines of a History of Philosophical, Hebrew and Christian Morals (Hanover, 1806); General History of the Christian Church (3d edition, 1823); History of Christian Morals since the Revival of Learning (1808); General Ecclesiastical History of Great Britain (Göttingen, 1819); History of Moral Philosophy (Hanover, 1822); History of the Theological Sciences (2 vols., 1811); History and Literature of Ecclesiastical History (edited by Hemsen, 1827). He edited several periodicals himself, as the Göttingen Library of the latest Theological Literature (1794—1800); Contributions to the Philosophy and History of Religion and Ethics in general, and of the various Creeds and Churches

(1797—99); Magazine for the History of Religion, Morals and the Church (1801—6); Archives of ancient and modern Ecclesiastical History (1813—20); Archives of Ecclesiastical History, in conjunction with Tzschirner and Vater (vol. i., Halle, 1823). He also wrote a great number of occasional treatises.

STAUFEN. See *Hohenstaufen.*

STAUNTON, Sir George Leonard, a traveller and diplomatist, was a native of the county of Galway, in Ireland. He was destined for the medical profession, with a view to which he studied at the university of Montpellier, and took the degree of doctor of physic. About the year 1762, he established himself in practice in the island of Grenada, in the West Indies, where he obtained the patronage of the governor, Lord Macartney, who made him his secretary; and he likewise held the office of attorney-general of Grenada, till the taking of that island by the French. His lordship, being appointed governor of Madras, took Mr Staunton with him to the East Indies, where he was employed in the arrest of general Stuart, who had opposed the authority of the governor. He also induced the French admiral Suffren to suspend hostilities before Gondelour, previously to the official announcement of the peace in 1714; and he negotiated a treaty with Tippoo Saib. Returning to England, the East India company repaid his services with a pension of £500 a year; the king created him a baronet, and the university of Oxford bestowed on him the diploma of doctor of laws. When Lord Macartney went as ambassador to China, Sir George accompanied him as secretary of legation, with the provisional title of envoy extraordinary and minister plenipotentiary. Of that mission, and of the empire and people of China, he published an Account in 1797 (2 vols., 4to.), which was translated into French and German. He died in London, in January, 1801.

STAUROTIDE; a mineral species, so called from *σταυρος*, a cross, in allusion to the regular crossing of its crystals, which so frequently takes place. The primitive form of the crystal is a right rhombic prism of 129° 30′, which is rarely modified at its extremities, though its acute lateral edges are usually truncated, converting the crystals into six-sided prisms. The cruciform crystals of this species are of two kinds: in the first, the crystals cross each other at right angles; in the second, at angles of 60° and 120°. Fracture uneven or conchoidal; lustre vitreous, inclining to resinous; colour reddish-brown, or brownish-red, very dark; streak white; translucent; hardness a little superior to that of quartz; specific gravity 3·3 to 3·9. According to an analysis, by Vaquelin, of the variety from Brittany, and another by Klaproth, of the variety from St Gothard, staurotide consists of

Silex, ...	33·00	37·50
Alumine, ...	44·00	41·00
Lime, ...	3·84	0·00
Magnesia, ...	0·00	0.50
Oxide of iron, . . .	13·00	18·25
Oxide of manganese, . . .	1·00	0·50

It assumes a dark colour before the blow-pipe, but does not melt. Staurotide occurs, for the most part, in mica slate, and is often accompanied by garnet and cyanite. It is found in single crystals on St Gothard, in Switzerland, and on the Greiner mountain, in Zillerthal, in the Tyrol. It is an abundant substance in the United States, particularly in the states of Maine, New Hampshire and Massachusetts.

STAY; a large, strong rope, employed to support the mast on the fore part, by extending from its upper end towards the stem of the ship, as the shrouds are extended on each side.

STAYS. See *Corset.*

STEALING. See *Larceny.*

STEAM; the vapour of water raised to such a degree of elasticity by the application of heat, as to be available to the propelling of machinery. When water, exposed to the pressure of the atmosphere, is heated to the temperature of 212°, globules of steam, composed of heat and water in a state of combination, are formed at the bottom of the vessel, and rising through the fluid, may be collected at its surface. In its perfect state it is transparent, and consequently invisible, but when it has been deprived of a part of its heat by coming in contact with cold air, it becomes of a cloudy appearance, as when it issues from a tea-kettle. By increasing the heat, the temperature of the water never rises above 212°, nor that of the steam which is generated; the only effect being a more copious production. If the water is confined in a strong copper vessel, both it and the steam which is produced may be brought to any temperature, and any degree of elastic force

Steam is highly elastic; but when separated from the fluid from which it is generated, it does not possess a greater elastic force than the same quantity of air. If, for instance, a copper vessel be filled with steam only, at 212°, it may be brought even to the temperature of red heat, without any danger of bursting; but if water be also in the vessel, each additional quantity of heat causes a fresh quantity of steam to rise, which adds its elastic force to that of the steam already generated, till the constantly accumulating force bursts the vessel in pieces.

The latent heat of steam, or that quantity of heat which is necessary for its existence in a state of vapour, and yet is not indicated by the thermometer is, according to the experiments of different philosophers, given in the following table:

Rumford,	1051°	Desprete,	956°
Thomson,	1016	Watt,	950 or 960
Lavoisier,	1000	Southern,	955
Clement,	990	Black,	800

The mean of these results is 950°, agreeing with the measure obtained by Mr Watt. The estimate of Lavoisier cannot be far from the truth, and affords a most convenient number for calculation, i. e. 1000.

Let us suppose that steam of the temperature of 212° contains 950° of heat, which is not detected by the thermometer, while it retains the gaseous state, its real quantity of heat will be $950^\circ + 212^\circ = 1162^\circ$; consequently, if we mix a quantity of steam with $5\frac{1}{2}$ times its weight of water, at 32°, the temperature of the water will rise nearly to the temperature of ebullition, because $5\frac{1}{2} \times 32^\circ + 32^\circ = 208^\circ$. Hence the great utility of steam not only in manufactures where great quantities of hot water are required, but also for heating large buildings, and for drying whatever is liable to combustion.

The elasticity of steam, arising, no doubt, from the great quantity of heat which it contains, is very great, and from its extensive application as an impelling power, it has been investigated with considerable attention.

Mr Watt was the first philosopher who made any accurate experiments on the elasticity of steam. These were performed while he was a mathematical instrument maker in the university of Glasgow, and considering the simplicity of the apparatus with which he conducted his experiments, the results he obtained are remarkable for their accuracy. The range of his experiments, extended from 55° to 272° Fahrenheit.

Dissatisfied with his own experiments, in the results of which he observed irregularities which he could not explain, Mr Watt, in the year 1796, requested Mr Southern to try them over again, and, in fulfilling his requests, he was assisted by Mr William Creighton.

Mr Achard of the Royal Academy of Berlin, published, in the Memoirs of 1782, a series of experiments on the elasticity of steam, from the temperature of 32° to that of 212°. The following are a few of the results, which are here compared with those of Mr Watt and Mr Robison, (afterwards Dr Robison) at this time a student at Glasgow, and subsequently the professor of Natural Philosophy in the University of Edinburgh:

Temperature.	Achard. Elasticities. Inches.	Watt. Elasticities. Inches.	Robison. Elasticities. Inches.
168°	11·05	11·24	10·60
189	18·5	18·45	17·47
209	28.1	27·88	26·05

The following results were obtained by Dr Robison:

Temperatures.	Elasticities.	Temperatures.	Elasticities.	Temperatures.	Elasticities.	Temperatures	Elasticities.
32°	0·0	100°	1·6	170°	11·05	240°	54·9
40	0·1	110	2·25	180	14·05	250	66·8
50	0·2	120	3·0	190	17·85	260	80·3
60	0·35	130	3·95	200	22·62	270	94·1
70	0·55	140	5·15	210	28·65	280	105·9
60	0·82	150	6·72	220	35·8		
90	1·18	160	8·65	230	44·5		

The next experiments on the elasticity of steam were made by Bettancourt, who also made similar experiments on the elasticity of the vapour of spirit of wine, and he found it at all temperatures equal to 2⅛ times that of steam. The next set of experiments on steam were made by Dr Dalton about 1800, with a degree of accuracy and care, which gives them a high value. The following is a table of his results.

Temperature. Fah.	Elastic force in inches of mercury.	Temperature. Fah.	Elastic force in inches of mercury.	Temperature. Fah.	Elastic force in inches of mercury.	Temperature. Fah.	Elastic force in inches of mercury.	Temperature. Fah.	Elastic force in inches of mercury.
40	0·013	29	0·180	62	0·560	95	1·58	128	4·11
30	0·020	30	0·186	63	0·578	96	1·63	129	4·22
20	0·030	31	0·193	64	0·597	97	1·68	130	4·34
10	0·043	32	0·200	65	0·616	98	1·74	131	4·57
0	0·064	33	0·207	66	0·635	99	1·80	132	4·60
1	0·066	34	0·214	67	0·655	100	1·86	133	4·73
2	0·068	35	0·221	68	0·676	101	1·92	134	4·86
8	0·071	36	0·229	69	0·698	102	1·98	135	5·00
4	0·074	37	0·237	70	0·721	103	2·04	136	5·14
5	0·076	38	0·247	71	0·745	104	2·11	137	5·29
6	0·079	39	0·254	72	0·770	105	2·18	138	5·44
7	0·082	40	0·263	73	0·796	106	2·25	139	5·59
8	0·085	41	0·273	74	0·823	107	2·32	140	5·74
9	0·087	42	0·283	75	0·851	108	2·39	141	5·90
10	0·090	43	0·294	76	0·880	109	2·46	142	6·05
11	0·093	44	0·305	77	0·910	110	2·53	143	6·21
12	0·096	45	0·316	78	0·940	111	2·60	144	6·37
13	0·100	46	0·328	79	0·971	112	2·68	145	6·53
14	0·104	47	0·339	80	1·00	113	2·76	146	6·70
15	0·108	48	0·351	81	1·04	114	2·84	147	6·87
16	0·112	49	0·363	82	1·07	115	2·92	148	7·05
17	0·116	50	0·375	83	1·10	116	3·00	149	7·23
18	0·120	51	0·388	84	1·14	117	3·08	150	7·42
19	0·124	52	0·401	85	1·17	118	3·16	151	7·61
20	0·129	53	0·415	86	1·21	119	3·25	152	7·81
21	0·134	54	0·429	87	1·24	120	3·33	153	8·01
22	0·139	55	0·443	88	1·28	121	3·42	154	8·20
23	0·144	56	0·458	69	1·32	122	3·50	155	8·40
21	0·150	57	0·474	90	1·36	123	3·59	156	8·60
25	0·156	58	0·490	91	1·40	124	3·69	157	8·81
26	0·162	59	0·507	92	1·44	125	3·79	158	9·02
27	0·168	60	0·524	93	1·48	126	3·89	159	9·24
28	0·174	61	0·542	94	1·53	127	4·00		

Dr Ure made various Experiments on the Elastic Force of Steam from 24° to 312°, the following results of which are given in inches of mercury:—

Temp.	Elastic force.	Temp.	Elastic force.	Temp.	Elastic force.	Temp.	Elastic force.
24°	0·170	155°	8·500	242°	53·600	281·8°	104·400
32	0·200	160	9·600	245	56·340	283·8	107·700
40	0·250	165	10·800	245·8	57·100	285·2	112·200
50	0·360	170	12·050	248·5	60·400	287·2	114·800
55	0·416	175	13·550	250	61·900	289	118·200
60	0·516	180	15·160	251·6	63·500	290	120·150
65	0·630	185	16·900	254·5	66·700	292·3	123·100
70	0·726	190	19·000	255	67·250	294	126·700
75	0·860	195	21·100	257·5	69·800	295	129·000
80	1·010	200	23·600	260	72·300	295·6	130·400
85	1·170	205	25·900	260·4	72·800	297·1	133·900
90	1·360	210	28·880	262·8	75·900	298·8	137·400
95	1·640	212	30·000	264·9	77·900	300	139·700
100	1·660	216·6	33·400	265	78·040	300·6	140·900
105	2·100	220	35·540	267	61·900	302	144·300
110	2·456	221·6	36·700	269	84·900	303·8	147·700
115	2·820	225	39·110	270	86·300	305	150·560
120	3·300	226·3	40·100	271·2	88·000	306·8	155·400
125	3·830	230	43·100	273·7	91·200	308	157·700
130	4·366	230·5	43·500	275	93·480	310	161·300
135	5·070	234·5	46·800	275·7	94·600	311·4	164·800
140	5·770	235	47·220	277·9	97·800	312	165·5
145	6·600	238·5	50·300	279·5	101·600	312	167·000
150	7·530	240	51·700	280	101·900		

The next experiments on the elasticity of steam were those of Mr Philip Taylor, at temperatures from 212° to 320°. But these do not differ so materially from the foregoing as to require insertion.

A very valuable set of experiments were made a few years since, by M. Arago and other members of the French Institute. The results contained in the following table, given by them, were obtained by direct experiment, from 1 to 24 atmospheres; all above this were calculated by a formula, and cannot, of course, be so much depended upon.

Elasticity of steam, the pres. of the atmosphere being 1.	Corresponding temp. in deg. of Fahrenheit.	Elasticity of steam, the pres. of the atmosphere being 1.	Corresponding temp. in deg. of Fahrenheit.	Elasticity of steam, the pres. of the atmosphere being 1.	Corresponding temp. in deg. of Fahrenheit.	Elasticity of steam, the pres. of the atmosphere being 1.	Corresponding temp. in deg. of Fahrenheit.
1	212	6	320·36	14	386·94	24	435·56
1½	234	6½	326·26	15	392·86	25	439·34
2	250·5	7	331·7	16	398·48	30	457·16
2½	263·8	7½	336·86	17	403·83	35	472·73
3	275·2	8	341·78	18	408·92	40	486·59
3½	285	9	350·78	19	413·78	45	499·14
4	293·7	10	358·78	20	418·46	50	510·6
4½	300·3	11	366·85	21	422·96		
5	307·4	12	374	22	427·28		
5½	314·24	13	380·66	23	431·42		

The most recent experiments on the elastic force of steam are those by a committee of the Franklin Institute, appointed by the treasury directors of the United States. The object of the committee was to inquire into the causes of the explosion of steam boilers, to investigate which they were requested to make experiments on the properties of steam, the expence of which was defrayed out of the treasury of the United States. The appointment of this committee is highly honourable to the government of the North American republic, and has been rewarded by results of great advantage to science, and highly creditable to the gentlemen who conducted the experiments. We give here an extract from the report, as published in the Journal of the Franklin Institute. The committee, determined to put the apparatus which was necessary for other experiments, to the best use possible, in determining the elastic force of steam, at different temperatures; and accordingly great pains were bestowed upon the graduation of the guage, the regulation of the temperature of its parts, &c., the comparison of the thermometers, the maintenance of the scales at about the same temperature, &c. The small size of the boiler, and the various openings required to be made in it for the experiments which were the immediate objects of the committee, were unfavourable to the attainment of considerable pressures, but the discrepancies, even at working pressures, of the different tables of the elastic force of steam, made it important to push those trials as far as could be done without material changes. They succeeded, without much difficulty, in reaching ten atmospheres, which is but one atmosphere less than the reputed working pressure of our high-pressure engines, and as the experiments on the safety valves have rendered probable, is very near the true working pressure.

Table of the Elastic Force of Steam, from One to Ten Atmospheres.

Pressure.	Observed temperature.	Pressure.	Observed temperature.	Pressure.	Observed temperature.	Pressure.	Observed temperature.	Pressure.	Observed temperature.
Atmos.	Fah.°	Atmos.	Fah.°	Atmos.	Fah.°	Atmos.	Fah.°	Atmos.	Fah.°
1	212	3	275	5	304½	7	326	9	345
1½	235	3½	284	5½	310	7½	331	9½	349
2	250	4	291½	6	315½	8	336	10	352½
2½	264	4½	298½	6½	321	8½	340½		

The results of the committee as to pressure corresponding to temperature, all fall below those of professor Robison, the extremes being ·14 and ·40 of an atmosphere; they approach nearer to those of Dr Ure, differing in the extremes —·06 and + ·12 of an atmosphere. They agree even pretty nearly with the experiments of Mr Taylor, tending, generally, to gain upon them; thus at 260° the difference is ·01 of an atmosphere, and at 320° is ·42. The temperature corresponding to six atmospheres, in the table of the committee, is 315½°, to the same (5·98) in that of Mr Taylor, 320°, and to the same in that of the French commission, 320·4, the latter two agreeing very closely.

From these comparisons it appears, that for given temperatures the pressures determined by the committee are lower than those found by professor Robison, between 1 and 3½ atmospheres; lower than those of Dr Ure, from 1 to 5½ atmospheres, except at the highest pressure, differing, however, but little from them; nearly the same from 1 to 2¾ atmospheres with those of Mr Taylor, and higher from 2¾ to 6 atmospheres; higher than those of Mr Southern; much higher than those of professor Arzberger; higher than those of the French commission.

In a work like the present, it would be out of place to investigate the formulæ used for the calculations where experiments were rendered impracticable; but we will give a very convenient rule, which is near enough the truth for all common purposes.

Add 100 to the temperature expressed in degrees of Fahrenheit, divide the sum by 177, and raise the quotient to the sixth power, the result will be the elastic force of the steam in inches of mercury, which, being divided by 2, will give the pressure upon the square inch. Thus if the temperature be 307° we have 307 + 100 = 407 ÷ 177 = 2·3, which raised to the sixth power is 2·3 × 2·3 × 2·3 × 2·3 × 2·3 × 2·3 = 148·035 inches of mercury, to which the pressure of the steam is equal, or 148·035 ÷ 2 = 74 pounds upon the square inch nearly.

When water is converted into steam, the vapour, as before observed, will occupy a much greater space than the water from which it was formed. It was found by Watt that a cubic inch of water, when converted into steam at a temperature of 212°, will occupy the space of a cubic foot, or rather more than 1700 cubic inches, this steam having an elastic force of one atmosphere, or being capable of exciting a pressure of 15 lbs. upon the square inch. If the pressure of the atmosphere be diminished or taken away, the steam formed from the same quantity of water will occupy a much greater space than one cubic foot, but its pressure will be diminished in a proportionate degree. On the other hand, when the water is made to boil under a greater pressure than that of the atmosphere, the steam formed will occupy a less space than one cubic foot, but will be possessed of a proportionately greater elastic force. Thus suppose the pressure on the surface of the boiling water to be two atmospheres, or 30 lbs. upon the square inch, then will the steam formed have a pressure of two atmospheres, but it will only occupy half a cubic foot. If it be allowed more free space, it will expand and fill that space, but as it expands its pressure will be lessened.

From what has just been said, the reader will readily conclude that as the steam from a cubic inch of water may be made to occupy a larger or smaller space, and to have a greater or lesser elastic force accordingly, that the density or specific gravity of the steam will increase with its elastic force. This law will be seen exemplified in the following table:

Pressure in inches of mercury.	Temperature Fahrenheit therm.	Weight of cubic foot in grains.	Specific gravity, air being unity.	Pressure in inches of mercury.	Temperature Fahrenheit therm.	Weight of cubic foot in grains.	Specific gravity, air being unity.
0·55	60·00	6·10	0·0115	75 00	263·00	593·50	1·123
1·00	77·00	10·70	0·0202	90·00	274·70	700·00	1·33
2·00	98·70	20·50	0·0388	105·00	284·50	810·00	1·53
3·00	112·50	30·00	0·0568	120·00	293·10	910·00	1·728
4·00	123·00	39·00	0·0744	150·00	308·00	1110·00	2·12
7·50	147·60	71·00	0·134	180·00	320·60	1317·00	2·5
15·00	178·00	135·00	0·255	210·00	331·50	1520·00	2·88
22·50	197·40	196·00	0·371	240·00	341·20	1660·00	3·25
30·00	212·00	254·70	0·484	270·00	350·00	1910·00	3·61
35·00	220·00	292·00	0·553	300·00	358·00	2100·00	3·97
45·00	233·80	363·00	0·687	600·00	414·00	3940·00	7·44
52·50	242·50	427·00	0·81	900·00	450·00	5670·00	10·75
60·00	250·20	483·00	0·915	1200·00	477·00	7350·00	13·88

At the commencement of this article the attention of the reader was drawn to the quantity of latent heat contained in steam, and the results of different experiments were given. We stated that the number 1000° was the most convenient and could not be far from the truth, but this is only the latent heat of steam at 212°. It was not one of the least important of the discoveries of Watt, that, whatever be the temperature of steam, the amount of its latent and sensible heat will be the same. From this law, it is easy to find the latent heat of steam at any temperature; for since 1000 added to 212° gives a sum of 1212, we have only to subtract the sensible heat from this constant number to obtain the latent heat. Thus if the temperature of the steam be 307, its latent heat will be 1212 — 307 = 905; and if the temperature be 400, the latent heat, in the same way, will be found to be 1212 — 400 = 812; hence the latent heat decreases while the sensible heat increases.

It is a singular fact that though low pressure steam will scald most dreadfully, yet high pressure steam will not. Dr Thomson accounts for this as follows:

"When the steam of boiling water comes in contact with any part of the living body, it occasions a most severe scald, but when steam of a higher temperature than boiling water, or high pressure steam, as it is called, issues into the atmosphere, the finger, or any part of the body, may be passed through it with impunity. It has not the property of scalding. And if a thermometer be placed into it, we find the temperature greatly below that of boiling water."—"When steam issues from the spout of a boiling tea-kettle, it is at first invisible, and it is not till it has advanced some distance in the air, that it begins to assume the appearance of a visible cloud. But condensed steam is visible the moment that it issues from the pipe. The high pressure steam, supposing the elasticity double, occupies only half the space of low pressure steam. The moment it comes into the atmosphere its volume is doubled. This occasions a prodigious increase in the capacity for heat, and at the same time mixes it with the cold atmospheric air. These two circumstances sink its temperature so low that it is no longer capable of scalding."

When steam is brought into contact with cold bodies, so that parting with a portion of its heat it is reduced below the temperature of 212°, it again assumes the liquid form and occupies 1700 times less space. This is called *condensation.* Upon this property, and upon its expansibility, depends its efficacy as a propeller of machinery, as will be shown in the subsequent article.

STEAM ENGINE, a mechanical contrivance, whereby steam is made to produce continuous motion.

History. The first idea of employing steam as a motive power, seems to have occurred to Hiero of Alexandria, who flourished about 40 B. C. He introduced high pressure steam into the interior of a hollow globe, revolving upon an axis, and having two projecting tubes from the sides, through which the steam escaped into the atmosphere, and by the reaction arising from its escape into the air, the globe was made to revolve. This engine acted on the same principle as Barker's mill. In 1629, Branca, an Italian, published an account of another form of steam engine, in which the steam, issuing out from a tube in the boiler, impinged upon the floats of a wheel, and turned it round. These contrivances are so trifling in their nature, so far as utility is concerned, that they need scarcely be mentioned. The first approaches at any thing like a useful machine was made by the marquis of Worcester, who, in a work entitled a *Century of the Names and Scantlings of Inventions*, published in the year 1668, gave an account of it, from which we may infer that his engine acted somewhat after the following manner. Suppose a long upright tube, furnished at the top with a valve opening upwards, and communicating with a vessel containing water. When steam is thrown upon the surface of the water, it will force the water up the pipe to a height greater in proportion as the force of the steam exceeds the elasticity of the air. The valve at the top of the pipe would prevent the water from returning when the steam was cut off. The inventor designates his contrivance, "an admirable and most forcible way to drive up water by means of fire;" yet the description of this engine, which forms the sixty-eighth of his century of inventions, is, like most of the others, in no way remarkable for its perspicuity; but his contrivance was inefficient in practice. He was the inventor of the digester that goes by his name, and of course the first who proposed or used a safety valve. Amontons and Deflander in 1692, proposed steam wheels, neither of which could be brought into useful action. Six years subsequent to the above date, Thomas Savary took out letters patent for a steam engine. During the course of the following year, he exhibited a working model of it before the Royal Society of London. The proposed use of Savary's engine was the draining of mines, and consisted of a long pipe inserted into the well to be drained, in which pipe a valve was placed, opening upwards, and at a height in the pipe not exceeding twenty feet above the surface of the water to be raised. Immediately above this valve a side pipe branched off from the main pipe, and formed a communication between it, and a hollow vessel, called the receiver. In the main pipe, and immediately above that part where the receiver pipe branched off, there was another valve opening upwards, and the top of the main pipe opened into the cistern, where the water was to be delivered. The receiver communicated with the boiler by means of a pipe furnished with a stop cock, which might be opened or shut at pleasure. and the receiver was connected in a similar way with the cold water cistern. Steam was admitted into the receiver and consequently into the main pipe, above the lower valve. When this was the case, the steam cock was shut, and cold water let into the receiver by the other pipe; the steam was condensed and a vacuum formed in the receiver and main pipe, and the water, by the action of the atmosphere, pressed up the main pipe from the well, and was prevented from returning by the lower valve which was closed by the weight of the fluid above it. In this state of things the steam was again admitted into the receiver, and acting upon the water in the main pipe, forced it through the upper valve up the pipe and into the cistern. The steam, of course, would at the same time force down the under valve, and prevent the water from returning to the well. Several ingenious mechanics have endeavoured to improve the engine of Savary, among whom may be more especially mentioned Mr Pontifax, Mr J. Boaz, and Mr G. Whitelaw. There were several engines erected on Savary's principle, but the introduction of Newcomen's, in 1705, caused it to be abandoned. Letters patent were granted in that year to Thomas Newcomen, a blacksmith, and John Cawley, a plumber, both of Dartmouth, in conjunction with captain Savary, for a new engine for raising water from mines. This captain Savary, it is to be observed, is the same Thomas Savary, above spoken of; he was neither a captain in the army or navy, but received the title from the miners, who are in the habit of calling their overseers captains. The nature of this invention may be described as follows. A solid piston was fitted in to a hollow cylinder, and so contrived that it was capable of moving up and down without difficulty, yet at the same time so accurately fitted that, while even in a state of motion, no air or steam was allowed to escape between it and the cylinder. In to this piston a rod was fixed, attached to one end of a long beam, suspended in the middle, and having the pump rods at the other end. The weight of the pump rods was such as to draw down that end of the beam, and by raising the other, lift the piston to the top of the cylinder. In this position steam was introduced into the bottom of the cylinder, so as to fill the whole space below the piston, and when this was done cold water was introduced, which converted the steam into water, or condensed it, and formed a vacuum in the cylinder below the piston. The pressure of the air on the upper surface of the piston forced it down to the bottom of the cylinder, raised the pump rods at the other end of the beam, and thus drew the water from the well. The re-admission of steam below the piston would destroy the vacuum, and the piston would be drawn to the top of the cylinder by the weight of the pump rods. Another condensation by the injection of cold water would cause the piston to descend, and so the alternate rising and falling of the piston and pump rods was continued. The steam and cold water were admitted, at the proper intervals of time, by an attendant, who turned stop cocks. It is recorded that a boy, named Potter, contrived, by attaching cords and catches to the beam and cocks, to cause the engine to admit and cut off the steam and the cold water at proper intervals. This occurred about the year 1712, but in 1717, Mr Henry Beighton, of Newcastle-upon-Tyne, made a more complete and effective arrangement for opening and shutting the valves. In the year 1720, one Leupold, a German, made the first proposal of a *high pressure engine.* He placed two cylinders above the boiler, the cylinders being placed side by side, and furnished with pistons. At the bottom of each cylinder an opening was made into a cavity, in which a four way cock was placed, so constructed that when a free passage was opened between the bottom of one cylinder and the boiler, a free passage was opened at the same instant between the bottom of the other cylinder and the atmosphere. Steam of an elastic force greater than the atmospheric pressure, was generated in the boiler, and being admitted into the bottom of one of the cylinders, forced up the piston to the top, while at the same time a free communication was opened between the bottom of the other cylinder, which allowed the steam it contained to make a free escape and the piston to descend. The four way cock was now turned so as to permit the steam in the cylinder whose piston was up,to escape, and therefore the piston would descend, while the other piston would be forced up by the steam from the boiler being admitted below it; and thus the operation was continued. About 1757, Fitzgerald proposed the use of the *fly wheel,* a simple yet powerful augmentation to the efficacy of the steam engine as a mover of machinery. The celebrated Smeaton did a great deal to improve the construction of Newcomen's engines, and his labours contributed in no small degree to hasten the engine to that state of perfection in which we now find it. John Blakey took out a patent, in 1766, for a proposed improvement on Savary's engine, in which he used two receivers, one placed above the other, preventing the contact of the steam and water by a floating stratum of oil, but his contrivance was impracticable. He had, however, the merit of inventing tubulated boilers, now so extensively employed in locomotive engines.

The greatest improvements ever yet made on the steam engine were reserved for Dr James Watt, a native of Greenock, but at the time his attention was drawn to the subject, a mathematical instrument maker in Glasgow. He began his researches on the nature of steam as early as 1763, but his plans for improving the steam engine seem not to have been matured until about 1768, and in the year following he obtained his first patent for "Methods of lessening the consumption of Steam, and consequently of fuel in fire engines." The great improvement held forth in the specification consists in condensing the steam, not in the steam cylinder, but in a separate vessel, with which it was made to communicate occasionally by the opening and shutting of a valve. By this means the steam cylinder was not cooled down by the injection of cold water at every condensation, as in the engine of Newcomen, otherwise called the atmospheric engine, and all the steam which was expended in heating the cylinder in Newcomen's engine was thus saved. He also specified his method of extracting the air and water from the condenser, by means of pumps, and likewise the employment of high pressure, or what he terms expansive, steam to work the engine, either with or without condensation. Watt might thus be considered the inventor of the high pressure engine, but the priority is due to Leupold, who proposed an engine with two cylinders on the high pressure principle. In the same specification he also includes the rotatory engine to be applied to the turning of mills. Instead of rendering the piston air-tight by water on its upper surface, he proposes oil, wax, mercury, &c. In 1781, one Steed obtained a patent for the crank motion, in order to convert the alternating motion of the beam into a continuous rotatory motion; but there is strong proof that the invention was stolen from Watt, as a pattern of the crank was lying in the yard of Boulton and Watt's foundery, at Soho, for some time previous to the date of Steed's patent. (See *Life of James Watt, Chambers' Biography of Eminent Scotsmen.*) Watt was thus driven to the invention of that beautiful motion, the sun and planet wheel, as a substitute for the crank, for which he obtained a patent the same year. Mr Jonathan Hornblower took out a patent, in 1781, for an ingenious method of employing steam so as to act expansively. He employed two cylinders; first allowing the steam to act uniformly in one, and then to act by expansion in the other; but as he could not employ a separate condenser he could not bring his engine into use. This was compensated for by Watt, who, in the year following, i. e. 1782, took out letters patent for his expansive engine. He employed only one cylinder, and effected the action from expansion, by admitting high pressure steam at the beginning of the stroke, but cutting it off when the piston had moved a certain space, after which the steam expanded to the end of the stroke. It is but justice to add, that Watt had employed the expansive engine both at Soho and Shadwell, between the years 1776 and 1778. In the patent of 1782, Watt included many contrivances for regulating the power of the double-acting engine. In 1784, he obtained letters patent for the parallel motion, together with other contrivances; and in the year following he obtained a patent for an improved smoke consuming furnace, the governor, steam gauge, condenser gauge, and indicator.

The next modification of the steam engine, of any consequence, was that of Cartwright, who proposed to condense the steam by means of cold water applied to the external surface of the condenser. The condenser consisted of two cylinders, one placed within the other, the cold water flowing through the inner and enveloping the outer. The valves to change the steam were placed in the piston, so that the condenser was always open. This engine was ingenious, but nothing more can be said of it. The metallic piston, however, was invented by Cartwright, and employed in his engine, and this invention is of itself sufficient to rank him among those to whom we are indebted for one of the great improvements in the steam engine. Much was done by Mr Murray, of the firm Fenton, Murray, and Wood, of Leeds, in improving several parts of the steam engine, which he included in his patents of 1799, 1801, and 1802. About the same period, Mr W. Murdoch, the well-known inventor of gas lighting, made several important improvements in constructing the cylinders and working the valves of steam engines. In 1801, Mr Bramah contrived the four way cock, as a substitute for the valves, the cock turning always in one direction.

As before stated, Leupold had projected a high pressure engine, and so had Watt, but it was not until 1802 that the principle was applied with success, in the simple high pressure engine of Trevithick and Vivian, whose principal object seems to have been the formation of a simple and portable engine, where water was scarce, and where economy of fuel was an object of less moment. These engines were intended chiefly to propel carriages on railways. In 1804, Arthur Woolf projected a new form of expansion engine, somewhat after the construction of Hornblower's, but he used high pressure steam in the small cylinder, whereas Hornblower did not. Wonderful advantages were expected from Woolf's engine, from the supposed existence of a law in the expansion of steam which he imagined he had discovered. He stated that from numerous experiments he had made, he found that the temperature remaining the same the bulk of steam is inversely as the pressure in lbs. above the atmosphere; and thus, that steam generated at fifty lbs. above the pressure of the atmosphere would expand, when allowed to escape into a large vessel of the same temperature, to fifty times its former bulk. But in this discovery he deceived himself, and has led many others astray, for the expansion will be inversely as the pressure; thus, a cubic foot of steam, generated at a pressure of 50 above the atmospheric pressure, will (reckoning the atmospheric pressure at 15 lbs. per square inch) expand in the proportion of 15 to 15 + 50, or 15 to 65, or 1 to $4\frac{1}{3}$, that is, the steam, when expanded, will only occupy $4\frac{1}{3}$ cubic feet, instead of 50, according to Woolf's assertion. The engine of Woolf is said, however, notwithstanding this immense deduction from its proposed advantages, to work better than the single cylindered expansion engine of Watt.

We have thus given a short sketch of the history of the steam engine, but we have not noticed the many attempts that have hitherto been made to form rotatory steam engines, or steam wheels, as these, however ingenious, have hitherto been failures, and when found to work at all, their effect has been inferior to that of the piston and cylinder engine, employing the same quantity of steam. Much has been said of late in praise of the American steam wheel, the invention of Mr Avery, and which has lately been brought into use by Mr Ruthven of Edinburgh, the inventor of the printing press which goes by his name. The writer of this article has a working model of this engine now before him, which works very well, and acts upon the same principle as Hiero's steam engine or the Eolopile, the first steam engine ever invented. Mr Ruthven has an engine, which is said to have a power of fifteen horses, now working on his establishment at Edinburgh, and driving turning laths and other machinery; but from the many unsuccessful attempts that have been previously made to produce effective rotatory steam engines, from the admirable exposition of the subject by Mr Russel, in the last volume of the Edinburgh Philosophical Transactions, and from our own experiments, we would not be disposed to be very sanguine as to the speedy and general adoption of the rotatory steam engine.

Description. In order to make the action of the condensing steam engine easily understood, we will draw the attention of the reader in the first place to the most important parts only, and afterwards point out the connexion of these with each other in more minute detail.

Let there be a hollow cylinder, A, fig. 1, accurately bored in the interior, so that it shall be smooth, and of the same diameter from bottom to top. Into this cylinder let a solid piston of metal, B, be fitted so that it may easily move up and down, yet so as not to allow air, water, or steam, to pass. To the centre of this piston let the upright rod, C, be attached, the upper end of which is connected with a long beam, or lever, D E F, poised in the middle E; to the other end, F, of this beam there is a weight, W, attached. G is a small pipe, also containing a piston similar to that in the large cylinder. The pipe in which this piston moves is closed at the top with a cover or lid, through the centre of which the rod *e* moves easily up and down, yet so as not to allow any air or steam to escape. A pipe I is led from the boiler and enters the pipe or small cylinder G, near the top, and at the bottom of this cylinder G another pipe enters, leading from the cistern, K, which contains cold water. A connexion is formed between the large and the small cylinders by the cross pipe L.

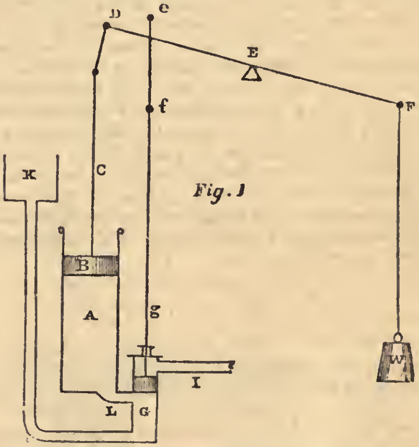


Fig. 1

Let us now suppose that the weight W is so adjusted as just to draw the end, F, of the beam down, and, consequently, raise the other end D, along with the piston B; and suppose the small piston to be below the opening L, in which case the steam from the boiler would be allowed to enter the large cylinder, as the piston B ascended. On the piston arriving near the top the beam would strike the tappet *e*, which would raise the small piston to the position shown in the cut; when in this position, it now being above the opening L, the steam from the boiler would be shut off, and a communication opened with the vessel K, from which cold water would enter the cylinder A, and condense the steam, forming a vacuum below the piston; the atmosphere above the piston then having nothing to counteract its weight, would cause the piston to descend; on its arriving near the bottom, the beam would strike the tappet *f*, and cause the small piston to descend below the opening L; this would stop the communication with K, and admit steam from the boiler, allowing the large piston again to ascend as before.

This is the nature of the action of the engine of

Newcomen, commonly called the *Atmospheric engine.* This engine is commonly used to raise water, the pump rods being substituted instead of the weight W.

Instead of injecting the cold water into the cylinder, Watt formed a communication between the bottom of it and another hollow vessel, M, fig. 2, called the condenser. Into this vessel a shower of cold water is continually flowing through a rose, the steam is condensed in consequence, and the cold water, together with the condensed steam, are taken out of the condenser by means of a pump N worked by the engine itself, so that the condenser is continually cleared.

In order to keep the piston parallel it was usual to attach the top of it to a chain, which adapted itself to a wooden arch at the end of the beam, but this has, in general, been abandoned for the more perfect contrivance for the same purpose, called the parallel motion, to be described hereafter.

It is not difficult to see that a very considerable addition of power could be derived from this engine were the pressure of the atmosphere taken off the top of the piston when it is in the act of rising. This is accomplished in the following manner. The cylinder is closed at the top, by a cover, as shown in fig. 3. Through the centre of the cover a circular opening is made to permit the piston rod to rise and fall, and a small metallic box is placed upon it, containing hemp, which envelopes the piston rod, and prevents the passage of air or steam by the opening. The upright tube *a b* communicates with the cylinder, both at the top and bottom, and also communicates with the steam boiler by a pipe I, as likewise with the condenser by means of a pipe D D. The upright pipe *a b* contains a rod, passing up through it, and movable up and down through a hemp stuffed box in the top, similar to that for the piston rod in the cylinder cover. This upright rod, or spindle, carries two pistons O O, which move up and down past the openings into the cylinder at the top and bottom. When the pistons are below the openings, or port holes, as they are called, as shown in fig. 3, then it is plain that there will be a free communication between the bottom of the cylinder, and the steam from the boiler, and at the same time a free communication between the top of the cylinder and the condenser. When the pistons are raised above the openings or port holes, then the case is reversed, the steam is cut off from the bottom of the cylinder, and admitted to the top, while the condenser is opened to the bottom and closed to the top. On whichever side of the piston the steam acts, it will move the piston in the direction of its own motion, that is, when the steam issues in at the top of the cylinder the piston will descend to the bottom, and when admitted at the bottom, the piston will rise to the top, there being nothing but its own friction to oppose its ascent or descent, as the moment that the steam is opened to one side, the other side is put into a state of vacuo, by being opened to the condenser. Such is the principle of the double acting condensing engine of Watt. If the steam be used of higher pressure than 14 lbs. to the square inch, and cut off before the piston has moved through the whole length of the cylinder, being then allowed to expand itself, the engine is of the expansive kind. If there be no condenser at all, and the steam be used of very high pressure, and instead of being condensed be allowed to escape into the open air, after it has moved the piston, then the engine is of the high pressure kind.

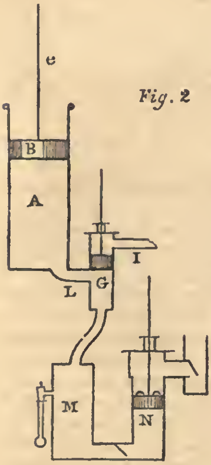


Fig. 2

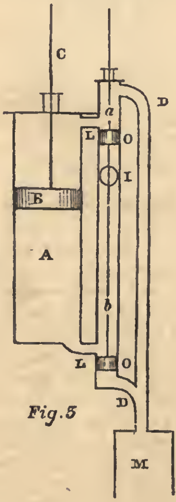


Fig.5

Having now laid down the general principles on which condensing and high pressure engines act, we will now describe them as actually constructed in all their parts, beginning with the high pressure engine, its arrangements being the most simple.

In the accompanying wood cuts, figs. 4 and 5 show a high pressure steam engine of the simplest construction. Fig. 4 is a side elevation, in which some of the parts are drawn in section, and fig. 5 is a ground plan. The same letters of reference are used for both figures. The hollow cylinder *a y* is made of cast-iron, and is accurately bored; the piston *b* is also made of cast-iron, accurately fitted to the cylinder. A flat groove is formed round the circumference of the piston, which is packed full of plaited hemp yarn, in order to prevent the steam in the cylinder from passing between the side of the cylinder and the piston. The piston rod *c*, which is made of malleable iron, is firmly fixed to the piston, and turned and polished, so that it will slide easily through the stuffing box, which forms part of one of the covers of the cylinder. In order to prevent the escape of steam, the stuffing box is packed with hemp. The cross head, or part fixed upon the end of the piston rod, which is outside of the cylinder, is connected to the crank *f* by means of the rod *g g*; one end of this rod works upon two turned parts on the cross head, and its other end works upon a pin fixed into the crank. The construction of the brass bushes into which the crank pin and the centres on the cross head work, are fully shown in the figures; and it may be remarked that the crank shaft, and other working parts of the engine, work into similar brass bushes. On the shaft *h h*, the fly wheel *i i*, is firmly fixed; for small engines this shaft and its crank are cast in one piece, but in large ones they are fixed together by bolts or otherwise. In order to show the parts more fully, the crank is drawn in a position perpendicular to the horizon in fig. 4, while its position is a horizontal one in fig. 5. The plummet block *l*, into which the crank shaft works, is in ordinary cases bolted upon a stone in the wall, and an opening is left through the wall round the block. The part *k* of the crank shaft is made so that a shaft or a wheel fixed on it may put the machinery to be driven by the engine in motion. There is a cast iron frame *m m m*, upon which the cylinder and most of the other fixed parts of the engine are bolted. The two rods *n n*, *n n*, which guide the cross head, are made fast at their ends to the framing of the engine, so that the axis of the piston rod may always be in a line with the axis of the cylinder. The frame *m m m*, is fixed down by means of bolts to the bottom of the building shown under the engine. A small pump *o o*, is wrought by the cross head: its use is to supply the boiler with water. A pipe is joined to the branch *p* to carry the water into the boiler, and a pipe from the branch *q* passes into a well. The cylinder has a cover fixed upon both ends, each cover being accurately fitted and made steam tight.

By inspecting fig. 4, it will be seen that each end of the cylinder has a communication with the cast iron chest or box *r*, by means of a passage which runs nearly over one half of the length of the top side of the cylinder, passing into the cylinder at one end and into the chest at the other. There is another passage or space besides the passages just mentioned, which also opens into the chest *r;* this space does not communicate with the inside of the cylinder, but communicates with the pipe *s*, which is called the eduction or escape steam pipe. There is another pipe, *t*, seen in both figs., which admits steam from the boiler. The steam chest *r*, together with the other parts described in this paragraph, constitute the nozles.

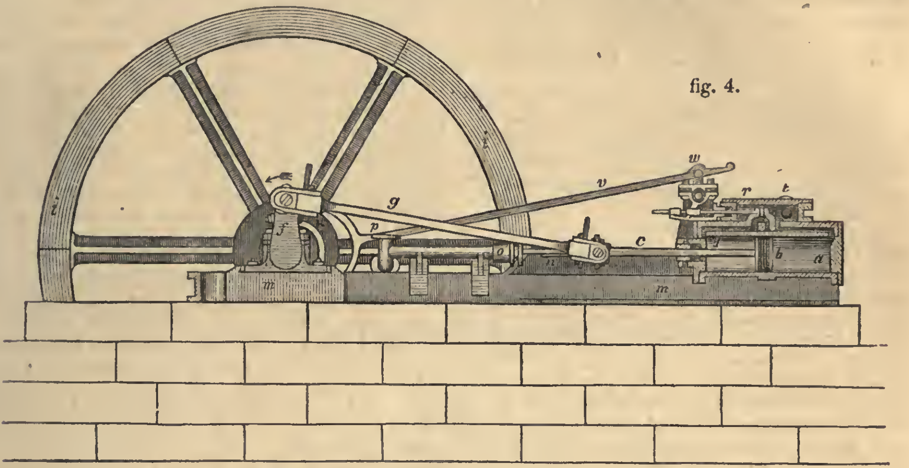


fig. 4.

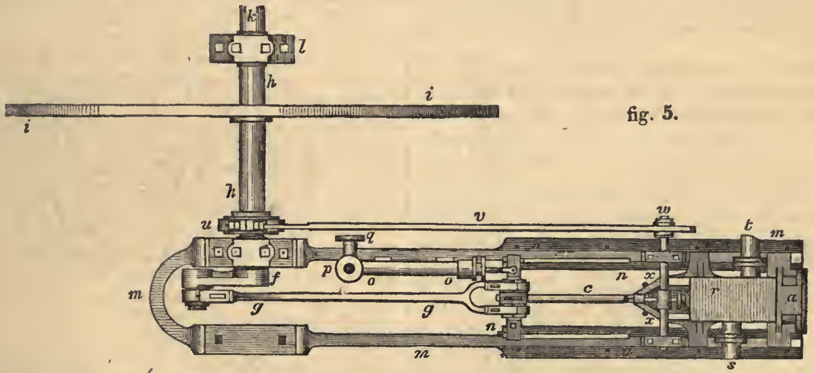
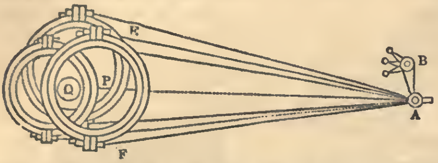


fig. 5.

Inside of the chest *r*, a small box is shown, with its open side undermost, and covering the passage which leads into the end, *y*, of the cylinder, as also the middle space or eduction port. This last described box is called the slide valve. The valve is made steam tight to the surface upon which it works, by first planing the parts in contact, and afterwards grinding the one part upon the other.

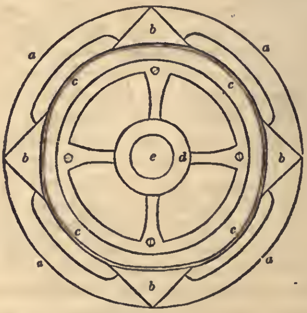
In the position of the valve, as shown in the drawing, no steam can escape from the boiler into the end *y* of the cylinder, but there is a communication with the boiler and the end *a* of the cylinder, and as the side of the valve next the hollow is above the passage leading into the end *y* of the cylinder, and also above the eduction opening or open *port*, if there then be any steam in the end *y* of the cylinder, it has a free escape into the atmosphere, through the pipe *s*. If the valve was pushed end ways, so that its hollow side were above the passage leading to the end *a* of the cylinder, and also above the space which lies between the passages into the cylinder, then there would be a communication with the end *a* of the cylinder and the atmosphere, and also a communication with the boiler and the end *y* of the cylinder. When the crank shaft revolves, the valve is kept working from its position in the drawing to the position just described, and back again to the position shown in the sketch, once during each revolution of the shaft by means of a wheel *u*, fixed upon the crank, called the eccentric wheel, in such a manner that the axis of the shaft and the centre of the wheel do not coincide. There is a ring or strap fitted loose upon the circumference of the eccentric wheel, and the rod *v* is fixed to the strap; by which arrangement, if the crank shaft revolves, the rod *v* will move on end from and towards the shaft once during a revolution. The rod *v* communicates its motions to the lever *w*, fixed upon the rocking shaft (so called from the nature of its motions) *x x*. The rocking shaft *x x*, works into brackets fixed to the frame work, and it has another lever fixed upon it, which conveys motion to the rod in connexion with the valve. The above remarks will be rendered more plain by the following figure, in which O represents the centre of the shaft, P the centre of a wheel fixed on that shaft, so that the centre or axis of the shaft shall be at a given distance from the centre of the wheel. A brass ring is placed loosely, but not so as to shake, in the circumference of the wheel, to which ring the rods E A, F A are firmly attached. These arms unite at A, being formed into an eye through which a pin passes, connecting them to the lever A B. It is plain that as the shaft O turns upon its axis the wheel whose centre is P will be turned round with it, and the rods attached to the ring upon its circumference will be drawn backwards and forwards so as to move the end A and give an alternating motion to the line A B.

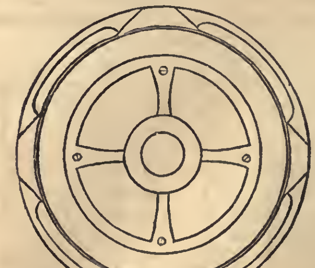


Suppose a steam engine with its parts in the positions as shown in fig. 4, and that the steam in the boiler was raised to such a pressure as that its force on the piston would always be more than sufficient to overcome the friction of the machinery and the resistance of the atmosphere. Then as the valve is in such a position as that the steam can only act on the side *a* of the piston next the latter, the piston will go in the direction of the arrow till it reaches the end of the cylinder. But as the valve is always in motion, and the eccentric is fixed on the crank shaft, in such a way, that when the piston reaches the other end *y* of the cylinder, it has shifted the valve so as just to be beginning to open the passage for the steam to get into this end *y* of the cylinder, and also to open the passage for it to escape from the end *a* into the atmosphere. On this account the motion of the piston will be reversed, and it will now move to the end *a* of the cylinder, and when it has reached this end, the valve will be so placed that the steam will send the piston again towards *y*, and in this way the piston acquires a continuous alternating rectilinear motion, which by intervening contrivances communicates a continued rotatory motion to the crank shaft. It will be understood that as the steam has less tendency to turn the crank shaft when the crank is near the position shown in fig. 5, than when it is in the position shown in fig. 4, the motion of this shaft will not be uniform. But the fly wheel is used to cause the motion of the crank shaft to be nearly uniform at every part of the stroke of the piston, by its taking in part of the power when the steam acts with its greatest force to turn the shaft, and again giving out this power when the steam has little tendency, from the position of the crank, to turn the engine. The fly wheel is, in short, a regulator of the engine; for as has been observed, in an elementary work on mechanics, "the effect of the fly wheel in accumulating force, has led some to suppose that there is, positively, a creation of force in the fly; but this is a mistake, for it is only, as it were, a magazine of power, where there is no force but what has been delivered to it. The great use of the fly wheel is thus to deliver out, at proper intervals, that force which has been previously communicated to it; and although there is absolutely a small loss of power by the use of the fly, yet this is more than compensated for by its utility as a regulator."

The piston is described above as being packed with hemp; but it is now common to use what are called metallic pistons, which are superior in many respects; they are attended with less trouble and expense, and they glide up and down the cylinder with less friction; indeed hemp packing for high pressure engines is not at all answerable, as the high temperature of the steam soon destroys it.

The metallic piston of Mr Barton, has been much approved of; its structure will be understood from the following figures:—*a a a a* are four metal segments; *b b b b* four right-angled wedges interposed between the segments, their points forming a portion of the periphery of the circle; *c c c c* is a thin steel spring, formed into a single broad hoop, and pressed into the undulated form represented, by which it is found to act with uniform energy upon the wedges, until they and the segments become so much worn in the course of time, that the steel spring recovers itself into its original circular figure; *d* is the frame-work, cast in one piece, with the lower plate of the piston; *e* is the piston rod; the open spaces shown on the plan within the circular frame *d*, are cavities to lessen the weight of metal; the other spaces are cavities to allow of the free action of the circular spring. To prevent the segments from falling out



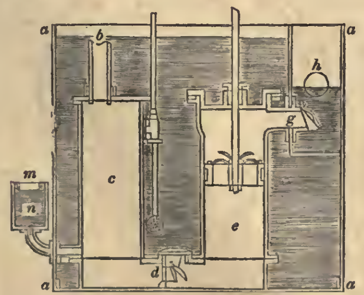


of their places whilst the piston is being taken out, or put into the cylinder, the periphery of it is grooved near to its upper and lower edge, in which are sunk two slight spring hoops, cleft across into forked joints, which close together simply by their elasticity. To lubricate the piston, there is a third groove, made midway between the two former, for the reception of oil; these parts are not introduced into the figures. The action is as follows:—as the piston and cylinder wear away by the friction, the circular spring *c*, presses out the wedges *b*, and these project the segments against the cylinder by degrees as they are reduced in thickness.

In the engine just described the cylinder is horizontal, which is unusual, but the position of the cylinder does not alter in any way the nature of the principle upon which the steam puts the piston in motion.

It must be evident, that the steam escaping from the cylinder of a high pressure engine, will be resisted by the pressure of the atmosphere; but if the eduction pipe, in place of opening out to the atmosphere, communicated with a vessel free of air, and having a jet of cold water running into it, so as to condense the steam as it entered, the steam would then meet with no obstruction, in which case, the steam from the boiler would act with greater force on the piston. On this principle, as we have already hinted at, is the condensing engine constructed, which comes next to be described.

We shall first notice the structure and action of the condenser, together with the air pump, and their connexions, as shown in the accompanying cut. *a a a a* represents a section of the cistern, containing cold water, *b* is the eduction pipe through which the steam passes from the cylinder into the condenser *c*. The condenser communicates with the air pump *e*, by a pipe at the bottom, furnished with a valve *d*, called the foot valve. This valve is of the clack form. The air pump *e*, is of the common suction kind, the piston being furnished with two valves, as will be seen in the figure. The valve *g* opens into the hot well *h*, and the opening at *h* is the end of a pipe that allows the surplus hot water in the well to run off, the remainder being pumped into the boiler. At the side of the condenser a rod is seen rising in the cistern, the lower end being attached to an injection cock. The water from the cistern passes through the injection cock and enters the condenser through a rose, in the form of a shower.



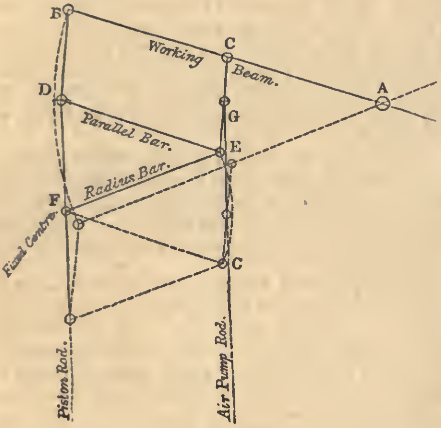
Before the engine is set a going, the injection cock being shut, steam is admitted into the cylinder, which, passing down through the pipe *b* into the condenser, displaces the water and air contained in the condenser, discharging them out through the snifter valve *n*, which opens into the small chest *m*. This operation of "blowing through," as it is termed, being continued a sufficient time, and the cylinder and condenser wholly filled with steam, the injection cock is then opened, and steam admitted to the one end of the cylinder, while the other end communicates with the condenser; the injection water immediately condenses the steam and the piston begins to move. The piston rod and air pump rod being attached to the same end of the beam, rise and fall together; when the piston rises, the valve in the bucket of the air pump will be shut, and all the air and water above the bucket will be lifted through the valve *g* into the hot well *h*. At the same time a vacuum being formed in the air pump *e*, below the bucket, more perfect than that in the condenser, the foot valve *d* will be opened, and the water and air will pass from the condenser into the air pump. When the bucket descends, the valve in it will open, and allow the air and water to pass into the space above it, while the valves *g* and *d* will be shut. At the return, the water and air is lifted through the valve *g* to the hot well or cistern, as before, &c. The condenser is usually made of the same capacity as the air pump, each being equal to one eighth of the content of the cylinder; that is, the length of the air pump should be one half of the length of the cylinder, and also its diameter one half that of the cylinder.

When a steam engine is made on this principle, the steam that is used has a low pressure, unless the engine be wrought expansively. (For an account of which method of working an engine, see the description of expansion valves given at the end of this article.)

Fig. 4, plate LXXXIII, is a view in section of the steam cylinder and nozels of a condensing engine, showing the piston with part of its rod, and the steam valves with their rods and connections. There are many different kinds of steam valves in use; those shown are what are called D valves, being different from those described for the high pressure engine. The principle of them will be best understood by referring to the cut fig. 3, page 388; and by supposing the pistons O O, to be semicircular, with their flat sides next to the steam ports, the face of the steam ports being also a flat surface. We shall also suppose hemp packing to be round the back of these pistons, or valves, for the purpose of preventing the steam from passing the valves, to the eduction side of the nozles, and at the same time to keep the flat side of the valve pressed to the other face c, the operation of the steam passing to and from the cylinder, being the same as was described when noticing cut, fig. 3.

Fig. 1, 2 and 3, plate LXXXIII, are three views of a twenty horse power condensing engine. First, there are the nozles into which the steam enters from the boiler, and from which the steam is admitted at proper intervals, into the cylinder, to give motion to the piston; the rods of it are seen connected to the working beam by the straps or links of the parallel motion. The other end of the working-beam has the connecting rod attached to it, which communicates motion from the beam to the crank; thus, with the aid of the fly wheel, producing a rotatory motion to the crank shaft. The vertical rods that hang down from the working beam are for working the engine pumps; the one next the cylinder, is for the air pump; that on the other side of the main centre columns works the cold water pump, which supplies the cold water cistern with water for condensing the steam. It is also usual to work the hot water pump which supplies the boiler, off the working beam, but in this engine it is wrought off the parallel motion, the rod from which is seen close to the main centre columns. These several pumps, together with the condenser and hot well, are all enclosed within the cistern on which the cylinder and main centre columns rest, and are shown in fig. 3. It will be seen that the slide valves in this, as in the high pressure engine, are wrought by an eccentric.

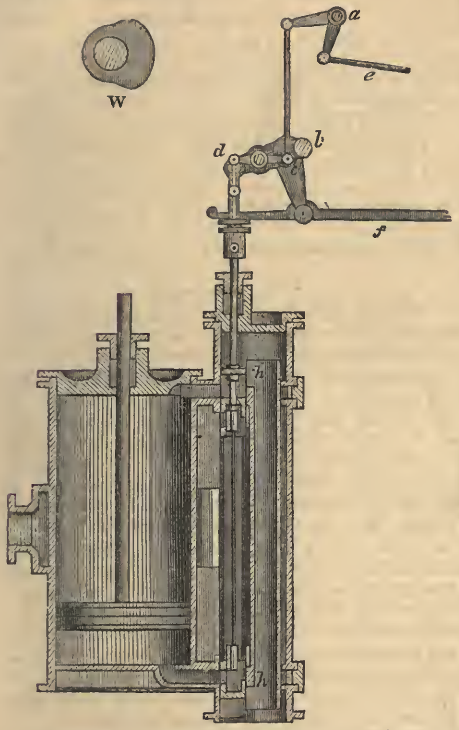
As the end of the working beam moves in an arc of a circle, it is necessary to have some means of guiding the piston rod, so that it may move up and down in a straight line. This is accomplished by that beautiful contrivance of Watt, the parallel motion. There are various modifications of this motion, such as the one of the engine we are now describing, but we shall confine ourselves to the common form, which the accompanying diagram will illustrate. The top of the piston rod and the top of the pump rod are connected by joints at B and C to the rods D B and E C, which rods are called straps or links. The links are connected by joints, B and C, to the working beam, and at their other extremities to a cross bar D E. The links are of the same length, and the bar D E being equal in length to the distance of the centres B and C, B C E D will be a parallelogram; hence the bar D E, being parallel to the working beam, is called the parallel bar. Another bar, F E, is connected to the parallelogram by a joint at E, and is moveable round a fixed centre, F. This bar is called the radius bar. By the alternate motion of the beam, up and down, it is plain that the joint C will describe an arc of a circle whose centre is the centre A of the working beam; and the joint E will describe an arc whose centre is the other extremity F of the radius bar; the centres A and F being fixed. Now the centres E and C are connected by the link E C; and by the alternate motion of the beam the joint C will draw the upper end of the link towards the left hand side of the figure, and the other end E will advance towards the right, and the link will become inclined; but there will be some point, as G, in the link which is bent neither to the right nor to the left, and if to this point the top of the air pump rod be attached, it will rise and fall in a vertical line. And as the length of the rods are so adjusted that the centre D keeps parallel to the point G, therefore the piston rod attached to this point will also move in a straight vertical direction.



In the transverse elevation, fig. 2, is seen the governor. Its purpose is for regulating the speed of the engine. It consists of two balls suspended from the upright spindle by two rods or arms moveable on the point of suspension. The spindle gets its motion from the crank shaft by means of the bevel wheels. When the engine is working, the spindle revolves, carrying the balls round about along with it. The centrifugal force that the balls thus acquire, will cause them to recede from the spindle or centre of motion to a distance proportionate to the speed of the engine. In the steam pipe, near to the nozels, is a throtle valve, as it is termed, for admitting more or less steam to act on the piston. It is so contrived that this valve is operated on by the governor balls as they expand or collapse. For instance, should it happen that the engine was going too quick, the balls would immediately fly farther asunder, and would act on the throtle valve so as to allow less steam to enter, and thus check the engine from attaining too great a velocity. On the contrary, if the engine was happening to go too slow, the balls would come nearer each other, which would open the throtle valve, and admit more steam to the engine, and thus enable it to keep up to its required speed.

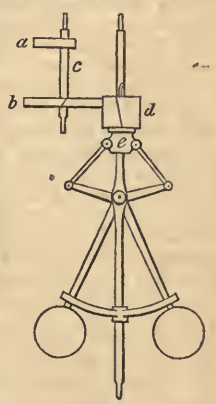
In a steam engine planned so that the communication between the boiler and the cylinder is closed before the piston reaches the end of its stroke, the steam in the cylinder expands, and carries the piston through the part of the stroke in which the cylinder has no communication with the boiler. This is by far the best method of working the steam engine, as all the power that is got out of the steam after the communication from the boiler to the cylinder is closed, is power gained over what would be had if the same quantity of steam was used in an engine working full pressure the whole length of its stroke; and although the steam used is of a high pressure, there is only a small quantity admitted into the cylinder at each stroke, and on this account an air pump and condenser may be used to great advantage in a high pressure engine. There are various methods in use of cutting off the steam; the plans now to be described seem well adapted for the purpose: they were invented by Mr James Whitelaw, and are modifications of some of his plans given in No. 13 of the Repertory of Patent Inventions.

The following cut shows a plan of expansion gear adapted to the cylinder and nozles of a steam boat engine of the ordinary form. In this fig. it will be seen that the cut off or expansion valves work upon the back of the face part of the large slide valve of the engine; the top cut off valve is shown covering its port in the face of the slide valve and the port for the bottom cut off valve is shown open. The small rocking shaft *a*, is supported upon brackets which may be fixed at a convenient distance above the rocking shaft *b*, which works the large slide valve. It will be seen that the rocking shaft *b* is cranked in order to let the end *c* of the lever *d c*, be so near the centre of motion of the shaft *b*, as that the motions which this shaft gives to the large slide valve will not shift the cut off valves from any position on the large slide-valve into which they may be put by means of the wiper and other apparatus which work them. The lever *d c* which gives motion to the cut off valves is fixed upon a centre, an end of which works into each lever in connection with the links which move the large slide valve. A wiper, shown enlarged at W, is fixed upon the crank shaft of the engine, and communicates its motions to a rod *e*, part of which is seen in the fig. and the motions of this rod are carried to the cut off valves by means of the other shafts, rods and levers, also shown in the fig.; *f* is the eccentric rod.



The large slide valve shown above is a modification of the leech D valve. The pipe *h h*, which forms the communication betwixt the top and bottom parts of the valve, does not work up and down, but it is fixed to the nozles, and the valve slides past it. The eduction pipe *h h* rests and is prevented from rising by means of narrow flanches cast on the top end of it, which are guided by means of similar flanches cast inside of the top part of the nozles; the construction of these flanches is such as to allow the pipe to be pressed against the valve, although they prevent it from working up or down. As the working part of this valve is very light, it may be made entirely of brass and cast in one piece: behind the rod which connects the top and bottom cut off valves, a light rib is shown in the fig., which connects the top and bottom parts of the large valve. Both faces of a valve, as now described, may be finished in a planing machine. In this sort of valve each set of blocks which press upon the packing should be cut into four pieces; one of these pieces should press upon each side of the valve and the other two pieces should act upon the packing placed round the eduction pipe.

In a factory engine, the part of the stroke at which the steam is cut off must be regulated by the governor. The following cut shows a plan of a governor, which shifts the wiper for working the expansion valves, so as to cut off the steam sooner, whenever the engine goes too quick, and if the engine happens to work below its proper speed, it puts the wiper into a position to give the piston the full pressure of the steam during a longer portion of its stroke; and in this way the governor keeps the engine going at nearly the same speed, whether it is doing much or little work. The wiper *a* gives motion to the cut off valves by means of a similar arrangement of rods, levers, &c., as shown in the immediately preceding cut, and it is of the same form as the one shown at W, in the same cut. *b* is a spur wheel and *d* is a pinion which gears into it. The part *e* of the governor is connected to the pinion *d* in such a manner that if the part *e* rises or falls, it will carry the pinion *d*, along with it; but the connection of these parts does not hinder the pinion from revolving on the governor shaft or rod. The wheel and pinion are calculated so as to cause the shaft *c* upon which the wiper *a* is fixed, to make the same number of revolutions as the crank shaft of the engine. The pinion *d* is bored out and fitted to the governor rod, so that it can revolve and work up and down on it, and the feather which forms the connection betwixt the rod and the pinion runs in a spiral direction, as shown in the cut, and not, as in ordinary cases straight up and down. By this arrangement, if the pinion *d* is raised or lowered by means of the governor, the screwed feather will carry it round upon the rod and shift the position of the wiper, so as to cut off the steam sooner or later, according as the balls are up or down, if the screwed feather winds in the proper direction. If the teeth of the spur wheels *b* and *d* wind in a spiral direction on the surface of their rims, as in White's wheels, the pinion *d*, as it rises or falls alongside of the wheel *b*, will cause the wiper and its shaft to revolve still farther than with the screwed feather, simply if the teeth of the wheel and pinion have the directions as per the angled lines drawn upon them. It will be evident that if the governor was driven at the same speed as the crank shaft, then the shaft *c*, as well as the wheel *b* and the pinion *d*, are not needed; as in this case, the wiper *a* would act as before stated, if it was fitted upon the governor rod at the same place and in the same manner as the pinion *d* is fitted.



Having thus considered the general principles of the structure and action of the steam engine, in its most common forms, we shall next proceed to investigate what may be the amount of mechanical energy which it can furnish.

By reference to the preceding article *Steam*, it will be seen that, under ordinary circumstances, the steam from a cubic inch of boiling water, at the temperature of 212°, occupies one cubic foot; or, in other words, that the steam fills about 1700 times the space previously occupied by the water from which it was formed. To make this more plain; suppose that a cubic inch of water were put into a hollow cylinder, whose area is one foot square in the base and twelve inches high, the content of such a cylinder must be one cubic foot, or 1728 cubic inches. Now if heat be applied to the bottom of this cylinder, and the water made to boil, the steam from that water will fill the whole of the interior of the cylinder. Suppose that a piston were fitted into the cylinder so that the piston must rise before the steam can fill the cylinder, and that there is no weight pressing down the piston, it is plain that the piston must be pressed up to the top of the cylinder with an energy or force equal to the force of the steam upon its under surface, which at this temperature of 212° is equal to the pressure of the atmosphere, or 15 lbs. upon the square inch. To determine therefore the effect of one cubic inch of water, converted into steam, we have only to multiply 144 square inches, or one square foot, the surface of the piston acted on by the pressure, which is 15 lbs. on each square inch, and the product $144 \times 15 = 2160$ lbs. through the height of one foot by the steam formed from one cubic inch of water. But this number, 2160, comes so near to the number of pounds in a ton, i. e. 2240 lbs. that, for the sake of round numbers, we may consider that one cubic inch of water, converted into steam at a temperature of 212° will raise one ton weight one foot high.

This is no doubt low pressure steam; and the question naturally arises, can we obtain any more force from high pressure steam, raised from the same quantity of water? No, we cannot. For let us take the hollow cylinder spoken of in the last paragraph, with its piston, and containing its cubic inch of water to be converted into steam; let the upper side of the piston be so loaded, that it cannot be forced up by the pressure of the steam below until it acts with a force of 30 lbs. upon the square inch,—then when the whole of the water has been formed into steam, it will have raised the piston up with a force of two tons, but only to the height of six inches; for the steam having double the elastic force of the former, occupies only half the bulk. The effects from the high and low pressure steam, when formed from the same quantity of water, are therefore equal; for it is quite the same thing, so far as mechanical effect is concerned, to raise one ton one foot, or two tons through half that height. The power of an engine will therefore depend upon the quantity of water converted into steam to supply it for a given time. It is also worthy of remark, that it will require the same quantity of fuel to convert a given quantity of water into steam, whether it be of the low or high pressure kind; so that the power of an engine will depend on the quantity of fuel consumed in its working.

In the common low-pressure steam engine of Watt, steam is admitted into the cylinder whose elastic force is somewhere about that of the atmosphere, which we have all along supposed to be 15 lbs. to the square inch; but imperfect vacuums, even in the best engines, diminish this pressure to about 12 lbs. on the square inch, or 9·4 on the circular inch. But from the power required to overcome the friction of the several parts, and to work the air and other pumps, there is only about 6 lbs. of effective pressure remaining for each circular inch of the piston.

Mr Tredgold gives the following tables, as an estimate of the loss of power that takes place in high pressure and condensing engines. In an engine which has no condenser:—

The pressure on the boiler being . .		10·000
1. The force necessary for producing motion of the steam in the cylinder . . .	·069	
2. By cooling in the cylinder and pipes	·160	
3. Friction of piston and waste . .	2·000	
4. The force required to expel the steam into the atmosphere	·069	
5. The force expended in opening the valves, and friction of the parts of an engine .	·622	
6. By the steam being cut off before the end of the stroke	1·000	
Amount of deductions	——	3·920
Effective pressure .		6·080

In one which has a condenser:—

The pressure on the boiler being . . .		1·000
1. By the force required to produce motion of the steam into the cylinder . . .	·007	
2. By the cooling in the cylinder and pipes	·016	
3. By the friction of the piston and loss .	·125	
4. By the force required to expel the steam through the passages . . .	·007	
5. By the force required to open and close the valves, raise the injection water, and overcome the friction of the axes . . .	·063	
6. By the steam being cut off before the end of the stroke	·100	
7. By the power required to work the air-pump	·050	
Amount of deductions	——	·368
Effective pressure .		·632

The diameter of a given cylinder being 24 inches, its area, and consequently the area of the piston in circular inches, will be, $24^2 = 576$.

We have seen that steam just sufficient to balance the atmosphere yields a power equal to 6 lbs. on the circular inch; hence the area of the piston $576 \times 6 = 3456$ the resulting force of the steam on the whole surface of the piston. And say that the length of the stroke is five feet, and the engine makes 44 single or 22 double strokes in a minute, then the piston will move through a space of $22 \times 5 \times 2 = 220$ feet in a minute; and from what has been said before, it will not be difficult to see, that the power of the engine will be equivalent to a weight of 3456 lbs. raised through 220 feet in a minute.

But in place of steam equal to the pressure of the atmosphere, it is usual to employ steam 2, 3 or 4 lbs. above the pressure of the atmosphere. So that the piston will have nearly that much more pressure on each circular inch of the piston.

This is the most certain measure of the power of a steam engine. It is usual, however, to estimate the effect as equivalent to the power of so many horses. This method, however simple and natural it may appear, is yet, from differences of opinion as to the power of a horse, not very accurate; and its employment in calculation can only be accounted for on the ground, that when steam engines were first employed to drive machinery, they were substituted instead of horses; and it became thus necessary to estimate what size of a steam engine would give a power equal to so many horses.

There are various opinions as to the power of a horse. According to Smeaton, a horse will raise 22,916 lbs. one foot high in a minute. Desaguliers has 27,500; and Watt makes it 33,000. There is reason to believe that even this number is too small, and that we may add at least 11,000 to it, which gives 44,000 lbs. raised one foot high per minute.

Now, in the case above, we found that the engine of 24 inch cylinder, would raise 3456 lbs. through the space of 220 feet in one minute; and it is easily seen that it could raise 220×3456 lbs. through one foot in the same time; therefore $220 \times 3456 = 760320$ lbs. raised through one foot in one minute, is the effective power of the engine; and from these considerations it will be easy to find the power according to the different estimates of a horse's power. For, according to Smeaton, $\frac{760320}{22916} = 33$ horses' power;

according to Desaguliers, $\frac{760320}{27500} = 28$ horses' power;

according to Watt, $\frac{760320}{33000} = 23$ horses' power;

according to the usual estimate, $\frac{760320}{44000} = 17$ horses' power.

The reader will have no difficulty in forming a general rule for estimating the power of a steam engine. (The effective pressure on each circular inch × the area of piston in circular inches × length of stroke in feet × number of strokes per minute) ÷ 44000 = the number of horses' power of the engine.

STEAM ENGINE, LOCOMOTIVE. See *Locomotion*, *Locomotive Engine*, and *Railways*.

STEAM NAVIGATION. The application of steam power to the propelling of vessels, is one of the most important inventions of modern times. By this application of the steam engine, man has so extended his dominion over nature, that he may be almost said to have completely overcome the wind and the tide in traversing the deep. From the uniformity and amount of the power, the time of transit upon rivers, seas and even the ocean, is not only vastly different from the former modes of navigating, but vessels may be calculated upon in all weathers with as much certainty as can well be desired. The advantages of steam navigation have, as is well known, been immense, and are daily increasing; but it is at the same time worthy of observation, that the advantages to mankind by its application to the art of war are by no means inconsiderable; for by diminishing the chance of victory of either side of the combatants over the other by chance advantages of winds or currents, it increases the certainty of destruction to and proportionally lessens the desire for battle. In a book by Valturius, entitled "De re Militari," printed at Verona, in 1472, a method is described of propelling vessels by means of paddles or wheels. The vanes, or paddles, were made of pitched sail cloth, and were put in motion by means of cranks. It is beyond doubt that troops were often transported across rivers, during the 15th and 16th centuries, by means of boats, or pontoons, moved by paddles, the paddles being turned by animal strength. Jonathan Hull was the first who proposed to apply steam power to the propelling of vessels. His method of converting the reciprocating into the rotatory motion was ingenious, though by no means so simple as the crank. The steam-boat was patented in December, 1736, and a description, with a drawing, published in a small pamphlet, in 1737, under the title of "A description and draught of a new invented machine for carrying vessels or ships out of or into harbour, port, or river, against wind, or tide, or in a calm." From the date of this invention it is manifest that the engine must have been the old atmospheric engine of Newcommen. The paddles were situated behind the boat. It would appear that, from want of encouragement, the steam-boat of Jonathan Hull was never actually constructed. Two Americans, James Ramsey of Virginia, and John Fitch of Philadelphia, claimed the honour of inventing steam-boats, about 1785, so also did Thomas Paine, but none of their plans were ever brought into practice. Robert Fulton, an American engineer, claimed the honour of being the inventor and constructor of the first steam-boat actually brought into use; but the following statements will show that his claims are unfounded.

The real inventors of the steam-boat were Mr Miller of Dalswinton, and the tutor of his family, Mr James Taylor. The former was the first to suggest the application of paddle-wheel in the propelling of vessels, and the latter to suggest the employment of steam as the moving-power of these wheels. So far back as the year 1788, they constructed a boat on this principle, the engine of which was made by Mr Symington, then a young engineer in Edinburgh. Experiments were made with this boat on the lake of Dalswinton, Dumfriesshire, which proved highly satisfactory, the vessel being driven at the rate of five miles an hour. The same gentleman, in the following year, constructed, at the Carron foundry, a larger vessel, which was tried on the Forth and Clyde canal in November and December, 1789, and went at the rate of seven miles an hour. Soon after this, a misunderstanding arose between Messrs Miller and Taylor, and the prosecution of the invention was by them for some time neglected. Mr Symington, the engineer, meanwhile, did not abandon the project. Having commenced business at Falkirk, he, in 1801, built another experimental steam vessel, which was also tried with success on the Forth and Clyde canal, but was interdicted by the canal company, on account of its motion destroying the banks. This vessel, which lay at Lock Sixteen, was inspected by Mr Fulton, accompanied by Mr Henry Bell of Glasgow, when on a visit to the Carron works; and the consequence was, that, in 1807, Mr Fulton launched a steam vessel on the Hudson, and, in 1812, Mr Bell another upon the Clyde, being respectively the first vessels of the kind used for the service of the public in the new and old hemispheres. Before, however, carrying the discovery to America, Mr Fulton, in company with Robert R. Livingston, American minister to France, made several experiments on the subject. After some trials on a small scale, they built a boat upon the Seine, in 1803, which was completely successful. On Mr Fulton's arrival at New York, in 1806, they immediately engaged in building a boat of what was then deemed very considerable dimensions. This boat began to navigate the Hudson river in 1807: its progress through the water was at the rate of five miles an hour. February 11, 1809, Mr Fulton took out his first patent for navigation by steam; and, February 9, 1811, he obtained a second patent for some improvements in his boats and machinery. In 1811 and 1812, two steam-boats were built under Mr Fulton's directions, as ferry-boats for crossing the Hudson river, and soon after, one of the same description for the East river. Of the former Mr Fulton wrote and published a description, in the American Medical and Philosophical Register, for October, 1812. These boats were what are called *twin-boats;* each of them being two complete hulls, united by a deck or bridge; sharp at both ends, and moving equally well with either end foremost; so that they cross and re-cross without losing any time in turning.

After the minute account that has been given of the steam engine, little need be said here more than to point out the peculiarities of the arrangement of its parts as adapted to navigation. The chief difference in form arises from the necessity of keeping the centre of gravity of the vessel as low as possible, in order that she may maintain her stability, and therefore the weight of the engine is as much as possible thrown below. For this purpose the working beam is taken away from the top, and in its stead two side levers are substituted, one on each side of the engine, and each connected with the piston pump rods and crank in a way which will at once be understood by inspecting the plates to which we shall very soon refer.

The revolving oars or paddle wheels having float boards fastened upon their circumferences, are placed at the sides of the vessel, and revolve upon the end of the crankshaft, in the place of the fly wheel shown in the plate of the condensing engine. Various forms of these paddles have been tried, but upon the whole it has been found that the common kind, fashioned after the manner of an undershot water wheel, answers best. From the nature of the resistance which the engine has to encounter, the paddles act as fly wheels, so that no fly wheel is required in a marine engine.

By inspecting plate LXXXIV. the arrangement of the several parts of a marine engine, as constructed by R. Napier, Esq. of Glasgow, will be seen. This engine is similar in form to those made by the celebrated engineer Maudsley of London. The following account of a steam vessel lately erected, but differing from the above in some of the details, will render any farther description of this plate unnecessary.

References to plate LXXXV. of Steam Navigation:—A. Saloon.—B.B. Gentlemen's state rooms. —C. Ladies' cabin.—D.D. State rooms.—E.E. Water closets.—FF. Wash hand basins.—G. Stewards' pantry.—H. Fore cabin.—J. Ladies' fore cabin.—K.K. Wash-hand basins.—L. Main cabin stair.—M. Fore cabin stair.—N. Engine room stair.

1. Boiler.—2. Funnel.—3. Safety valve.—4. Cylinder.—5. Side lever.—6. Air pump.—7. Condenser.—9. Crank shaft.—10. Cranks.—11. Connecting rod.—12. Paddle wheels.—13. Nozzle case.—14. Bottom plates.—15. Foot valves.—16. Discharging valves.—17. Steam pipes.—18. Eccentric rods.—19. Parallel motion rods.—20. Cylinder side rods.—21. Diagonal stay and upper crank framing.—22. Transverse stay rods.—23. Lower crank-framing.—24. Cylinder cross heads.—25. Air pump cross heads.—26. Cross tails.—27. Paddle wheel shafts.—28. Upper chamber of condenser. —29. Lower chamber of condenser.—30. Pistons. —31. Piston rods.—32. Main centres.

Having given those references, we will now lay before the reader a more detailed account of the *Sea Horse* steamer.

The *Sea Horse* steam ship was built by Thomas Adamson, Esq., ship-builder, Dundee, and the engines manufactured by Peter Borrie, Esq., Tay Foundry, Dundee, who also fitted up and furnished her cabins. This vessel is the largest ever built on the Tay, having length of keel 150 feet, length on deck 170 feet, breadth over the paddle boxes 48 feet, length of quarter deck 65 feet, and breadth 30 feet. The vessel is all timbered with oak of the best quality, die square, and large scantling, being thirteen inches at the keel, and made perfectly solid and caulked outside and inside from stem to stern to the six feet water line before the planking was put on. The planking at the keel is six inches thick, bolted horizontally through the keel, and at the bilges it is seven inches thick, and also bolted edge ways to each other, all strongly copper bolted through and clenched inside. The keelson is oak, fourteen inches by sixteen inches, bolted through with 1¼ inch copper in every floor timber, and clenched on the under part of the keel. There are four riders from stem to stern, fourteen inches square, bolted in a similar manner to the keelson; upon these the engines and boilers rest. The vessel throughout is planked with heavy planking, the greater part amidship being six inches thick, bolted edge ways to each other and through the vessel's side. The lower side of the keel is covered from end to end the whole breadth with iron plates ¾ inch thick, bolted upwards, with the bolts counter sunk in the plates. Her cubical displacement, when immersed to the load water line, is about 800 tons; and allowing 420 tons for weight of vessel, engines, boilers, equipments and stores, a dead weight of 380 tons can be transported by this vessel. Two large fore and after holds are provided for the stowage of this cargo, whose cubical capacity is 15,200 feet.

The sole plates of the engines are strongly bolted through the riders, thus rendering it impossible, while the vessel holds together, that the engines can sustain the least strain. The engines have no connections with the deck beams. The two framings are securely bound together by horizontal stays, which method is found superior in many respects to the way formerly practised in binding the engine framing to the deck beams. Besides other advantages, it is found to do away, in a great measure, with that tremulous motion so universal and so disagreeable on board of steam vessels.

The space occupied by the engines and boilers is fifty-four feet long by 23½ feet broad by twelve feet high. The boilers are twenty-eight feet long by twenty-one feet broad by 9½ feet high, having eight furnaces, whose flues traverse the boilers twice, and then the smoke passes into the funnel. Around the funnel is the steam chest, from which a large pipe, with two verticle branches at the opposite end, communicates to the nozle casing, and the steam is admitted to and educted from the cylinders by slide valves wrought from the paddle shaft by eccentrics in the usual manner. The relative situation of the boilers and engines are different from the common method. Instead of the cylinders being next the boilers, they are placed at the opposite end of the sole plates. Thus the cylinders are ahead of the paddle shaft instead of being a-stern. From this arrangement several advantages result, the principal of which is, that the shaft is placed nearer the centre of buoyancy, which causes the paddle floats to operate with much better effect on the water, and gives an increased speed to the vessel.

One of the greatest difficulties encountered in applying steam to the purposes of navigation, arises from the necessity of having to supply the boiler with sea water. This cannot be avoided where the common condenser is used and the condensation of the steam effected by a jet of sea water, as the boiler is supplied from the condenser, and this water holds in solution a proportional quantity of salt to the quantity of water used.

The salt, thus conveyed into the boiler, not being evaporated, remains there; and as a constant egression of steam from the boiler causes as regular an increase of salt, its accumulation soon becomes greater than what water is capable of holding in solution; a deposition of salt in the boilers immediately commences, which in process of time would fill them. And in addition to the salt thus conveyed into the boilers, under some circumstances a deposition of lime is made. These, with other ingredients form so hard an incrustation on the inner surface of the boilers, particularly in the cavities about the furnaces and flues, as to render the generation of a sufficient quantity of steam a matter of considerable difficulty on long voyages. As this crust continues to thicken the heat is impeded by it, and the metal of the boilers becomes overheated, raising it to a temperature much above that of the water, and in some instances to such an extent that the boilers become red hot and burn. The consequence is a rapid destruction of the boiler, an unnecessary waste of fuel, and great labour in removing the crust at the termination of each voyage.

Engineers have suggested a variety of methods for carrying off the salt; among others a process of discharging several tons of water from the boilers every twenty-four hours, or oftener, and termed blowing out. But the most effectual remedy yet suggested for the removing of this obstacle, appears to be that of Mr S. Hall, of Basford, near Nottingham, who has become patentee for a new form of condenser, specially intended for preventing the accumulation of salt in marine boilers, &c.

Mr Hall's condenser consists of a cast iron cistern, situated where the common condenser is usually placed in other engines. At the top and bottom of this cistern a flat chamber is formed by two brass plates which are accurately fitted into the cistern, and made steam tight. These two plates are closely perforated, into which perforations the extremities of as many composition tubes are introduced, and made tight by a peculiar method of stuffing, to allow of their expansion without permitting the steam to escape through the stuffing boxes or any injury to the tubes.

From the cylinder the steam escapes to the upper chamber of the condenser and then descends vertically through the tubes to the lower chamber, into which it enters in the form of pure water (being condensed by the cold surfaces of the tubes in its descent) in which form, it is thence drawn off by the air pump and again conveyed into the boilers. While the steam is thus continuously passing through the inside of the tubes, a regular stream of cold sea water is injected by a force pump into the cistern, and made circulate among them, which, cooling their external surfaces, causes a condensation of the steam. This water is again forced into the sea and replaced by a fresh supply from the force pump. It is indeed a regular current of cold water flowing incessantly through among the tubes.

From the above description, it is evident that no waste of the water originally introduced into the boilers will take place, but what arises from leakage; so if the boilers be filled with pure water, it may be worked for any length of time without injury. The small quantity lost by leakage is supplied by a small apparatus, in which a sufficient quantity of sea water is distilled.

The steam, which in other engines is allowed to escape through the safety valve into the atmosphere when the vessel stops, or when the engines are working at an under power, is in Mr Hall's engines conveyed by a safety valve of a peculiar construction, communicating with a tube to the condenser. It is then reconverted into water and pumped into the boilers by the air pump.

The following are the advantages, as stated by Mr Hall, to be gained by his condenser:—1. A saving of fuel, amounting, in some cases, to so much as a third of the ordinary consumption. 2. The preservation of the boilers from the destruction produced in common engines by the corrosive action of sea or other impure water, and by incrustations of earthy matter. 3. The saving of the time spent in cleaning the boiler. 4. A considerable increase of power, owing to the cleanness of the boilers; the absence of injected water to be pumped out of a vacuum; the greater perfection of the vacuum; the better preservation of the piston and valves of the air pump; and (by another contrivance of his) the more perfect lubrication of the parts of the engine. 5. The water in the boiler being constantly maintained at the same height by self-acting arrangement. 6. The size of a boiler exerting a given power, being much smaller than the common kind, owing to its more perfect action.

P. Borric having obtained a licence from the patentee for making this condenser, has, at the request of the Company to whom the *Sea Horse* belongs, fitted her engines up with two of them.

The number of tubes in the condenser shown is 2621; ½ inch diameter, and five feet eight inches long, metal No. 21, W. G. thickness. These tubes are made of a composition of copper and tin, and are all well tested before being used.

As is shown in the transverse section, fig. 6, the *Sea-horse* has two engines of 120 horse power, each having cylinders fifty-five inches diameter, with a stroke of five feet, and makes twenty-one strokes per minute. The paddle wheels are twenty-one feet diameter and 8½ feet broad, and their circumference gives a velocity of $15\frac{33}{43}$ miles an hour.

This vessel is also provided with two powerful double-acting force-pumps, used for filling the boilers with water or pumping out the bilge water when necessary. A hose is provided, and at a moment's notice can be attached to them; so that in case of fire on board, a continuous and powerful stream of water can be instantly conveyed to any part of the vessel, and answer, on such an occasion, all the purposes of a fire engine.

The saloon of the after cabin occupies a space of 650 square feet, being forty feet in length and eight feet high. In connection with the saloon are two state rooms, one gentlemen's and one ladies' cabin, also an ample lobby and steward's pantry and other necessary conveniences, as will be indicated by the references on the plate. The sofas are all so constructed that, when required, they are available as sleeping berths, making in all, with the matress beds, fifty-four berths in the after cabin; besides the moveable sofa berths, which will accommodate eight or ten more.

The saloon table will accommodate fifty at dinner. The panneling of the saloon is embellished with landscape and sea views, and otherwise superbly decorated, that may justly entitle it to the designation of a floating palace.

The fore cabin is also spacious, being eight feet high, and fitted up in a very elegant manner. Besides the main fore cabin, in area 240 square feet, there is a commodious cabin for the ladies, containing eighteen sleeping berths and other conveniences. The main cabin has sleeping berths for thirty; in all forty-eight sleeping berths in fore cabin. The dining table of this cabin can accommodate forty-three persons.

On deck, fore and aft the paddle boxes, on each side, are the cook's pantry, cooking apparatus, water closets, &c., and in the engine room and forecastle are sleeping berths for engineers and crew.

STEAM-GUN. As early as 1805, the French general Chasseloup is said to have shown the possibility of preparing steam artillery. In 1814, a French engineer constructed ordnance of this sort. The generator supplied at once six pieces of artillery with steam. The turning of a cock supplied all the pieces at once with balls and steam. This machine could make 150 discharges in a minute. The steam artillery invented by Jacob Perkins is thus described by him, in a letter to doctor Jones, editor of the Franklin Journal, dated March 8, 1827:—"I am now engaged in building steam artillery, as well as musketry, for the French government. The piece of ordnance is to throw sixty balls, of four pounds each, in a minute, with the correctness of the rifled musket, and to a proportionate distance. A musket is also attached to the same generator, for throwing a stream of lead from the bastion of a fort, and is made so far portable as to be capable of being moved from one bastion to another. The musket is to throw from one hundred to one thousand bullets per minute, as occasion may require, and that for any given length of time. I am within the truth when I say that, if the discharges are rapid, one pound of coals will throw as many balls as four pounds of powder."

STEARINE. See *Fat*, and *Soap*.

STEATITE (*soapstone*). All the varieties of steatite are so soft that they may be easily cut by a knife, and in most cases scratched by the nail. Its powder and surface are soft, and more or less unctuous to the touch. It is seldom translucent except at the edges. Its fracture is, in general, splintery, earthy or slaty, with little or no lustre. By friction it communicates to sealing-wax negative electricity. Exposed to heat, it becomes much harder, but is almost infusible by the blow-pipe. It is a compound of silica, magnesia, alumina, oxide of iron, and water. It is sometimes much mixed with talc, asbestus, &c. It is very common in Cornwall and Germany. Common steatite is usually solid, and its texture compact: sometimes it is almost friable, and its texture earthy. Its surface is often like soap to the touch. Its colour is usually gray or white, seldom pure, but variously mixed with green, yellow or red, and is sometimes a pale yellow, red or green, of different shades. The colours sometimes appear in spots, veins, &c. Its specific gravity is usually between 2·38 and 2·66. When solid, it is somewhat difficult to break. It sometimes presents pseudomorphous crystals. It agrees with talc in its composition. Common steatite occurs in masses or veins, or small beds, in primitive and transition rocks, more particularly in serpentine. The variety of steatite, called *potstone* is in hardness nearly the same as common steatite, but is more tenacious. The substance employed in the arts under the name of *soapstone*, usually belongs to steatite, but sometimes to lamellar or indurated talc. Steatite is not susceptible of a good polish; but its softness and tenacity, in consequence of which it may be cut or turned into various forms, and its property of becoming hard by heat, render it a useful mineral in the arts. It is employed for the hearths of furnaces, the sides of fire-places and stoves, &c. The potstone has received its name from having been manufactured into culinary vessels. The common steatite has even been employed for the purpose of engraving; for, being easily cut when soft, it may be made to assume any desired form, and afterwards rendered hard by heat. It then becomes susceptible of a polish, and may be variously coloured by metallic solutions. Steatite is used in Britain in the manufacture of porcelain. It has a great affinity for glass. It is also employed in the manner of paste, reduced to a fine powder, and mixed with colouring matters, for painting on this substance. Tailors and embroiderers prefer it to chalk for marking silk. It possesses the property of uniting with oils and fat bodies, and enters into the composition of the greater number of the balls which are employed for cleaning silks and woollen cloths. It also forms the basis of some preparations of paints. It is used to give lustre to marble, serpentine and gypseous stones. Mixed with oil, it serves to polish mirrors of metal and crystal. When leather, recently prepared, is sprinkled with steatite to give it colour, and afterwards, when dry, is rubbed several times with a piece of horn, it assumes a very beautiful polish. Steatite is also used in the preparation of glazed paper. It facilitates the action of screws, and from its unctuosity, may be employed with much advantage for diminishing the friction of the parts of machines which are made of metal.

STEEL is a compound of iron and carbon. The furnace in which iron is converted into steel, has the form of a large oven, or arch, terminating in a vent at the top. The floor of this oven is flat and level. Immediately under it there is a large arched fire-place, with grates, which runs quite across from one side to the other, so as to have two doors for putting in the fuel from the outside of the building. A number of vents, or flues, pass from the fire-place to different parts of the floor of the oven, and throw up their flame into it, so as to heat all parts of it equally. In the oven itself, there are two large and long cases or boxes, built of good fire stone; and in these boxes the bars of iron are regularly stratified with charcoal powder, ten or twelve tons of iron being put in at once, and the box is covered on the top with a bed of sand. The heat is kept up, so that the boxes and all their contents are red hot for eight or ten days. A bar is then drawn out and examined; and if it be found then sufficiently converted into steel, the fire is withdrawn and the oven allowed to cool. This process is called *cementation*. The bars of steel formed in this way are raised, in many parts, into small blisters, obviously by a gas evolved in the interior of the bar, which had pushed up, by its elasticity, a film of the metal. On this account, the steel made by this process is usually called *blistered steel*. The bars of blistered steel are heated to redness, and drawn out into smaller bars by means of a hammer, driven by water or steam, and striking with great rapidity. This hammer is called a *tilting hammer*, on which account, the small bars formed by it are called *tilted steel*. When the bars are broken in pieces and welded repeatedly, and then drawn out into bars, they acquire the name of *German* or *shear steel*. Steel of cementation, however carefully made, is never quite equable in its texture; but it is rendered quite so by fusing it in a crucible, and then casting it into bars. Thus treated, it is called *cast-steel*. When steel is to be cast, it is made by cementation in the usual way, only the process is carried somewhat farther, so as to give the steel a whiter colour. It is then broken into small pieces, and put into a crucible of excellent fire clay, after which the mouth of the crucible is filled up with vitrefiable sand, to prevent the steel from being oxidized by the action of the air. The crucible is exposed for five or six hours to the most intense heat that can be raised, by which the steel is brought into a state of perfect fusion. It is then cast into parallelopipeds about a foot and a half in length. To fuse one ton of steel, about twenty tons of coals are expended; which accounts for the high price of cast-steel, when compared with that of iron, or even of common steel. Every time that cast-steel is melted, it loses some of its characteristic properties; and two or three fusions render it quite useless for the purposes for which it is intended. It has recently been proved that the steel of which the Damascus blades were made, and which was steel from Golconda, owed the peculiarity which these blades have of showing a curious waving texture on the surface, when treated with a dilute acid, to their consisting of two different compounds of iron and carbon, which have separated during the cooling. It is cast-steel in which the process is carried farther than usual, and which is cooled slowly; both common steel and cast-steel are formed, which separate during the slow cooling. The steel is rendered black by the acid, while the cast-iron remains white. This kind of steel can only be hammered at a heat above that of cherry-red.

The specific gravity of good blistered steal is 7·823. When this steel is heated to redness, and suddenly plunged into cold water, its specific gravity is reduced to 7·747. The specific gravity of a piece of cast-steel, while soft, is 7·82; but when hardened by heating it red-hot, and plunging it into cold water, it is reduced to 7·7532. Hence it appears, that when steel is hardened, its bulk increases. The colour of steel is whiter than that of iron. Its texture is granular, and not hackly, like that of iron. The fracture is whitish-gray, and much smoother than the fracture of iron. It is much harder and more rigid than iron; nor can it be so much softened by heat without losing its tenacity and flying in pieces under the hammer. It requires more attention to forge it well, than to forge iron; yet it is by its toughness and capability of being drawn out in bars, that good steel is distinguished from bad. Steel is more readily broken by bending it than iron. If it be heated to redness, and then plunged into cold water, it becomes exceedingly hard, so as to be able to cut or make an impression upon most other bodies. But, when iron is treated in the same way, its hardness is not in the least increased. When a drop of nitric acid is let fall upon a smooth surface of steel, and allowed to remain on it for a few minutes, and then washed off with water, it leaves a black spot; whereas the spot left by nitric acid on iron, is whitish-green. Doctor Thomson gives the following as the composition of cast-steel:

Iron, ...	99
Carbon, with some silicon, ...	1
	100

The *natural steel*, or *German steel*, is an impure and variable kind of steel, procured from cast-iron, or obtained at once from the ore. It has the property of being easily welded, either to iron or to itself. Its grain is unequally granular, sometimes even fibrous; its colour is usually blue; it is easily forged; it requires a strong heat to temper it, and it then acquires only a middling hardness. When forged repeatedly, it does not pass into iron so easily as the other kinds. The natural steel yielded by cast-iron, manufactured in the refining houses, is known by the general name of *furnace steel;* and that which has only been once treated with a refining furnace, is particularly called *rough steel,* and is frequently very unequally converted into steel. The best cast-iron for the purpose of making natural steel, is that obtained from the brown hæmatite, or from the sparry iron ore. White cast-iron does not yield steel, unless its charge of carbon is increased, either by stirring the melted metal with a long pole, and keeping it melted a long time, that it may absorb charcoal from the lining of the furnace, or by melting it with dark-coloured iron. Black cast-iron yields a bad, brittle steel, unless the excess of carbon that it contains is either burnt away, or it is mixed with finery cinder. The cast-iron to be converted into steel is then melted in blast furnaces, and treated nearly the same as if it were to be refined into bar-iron, only the blast is weaker; the tewyre, instead of being directed so as to throw the wind upon the surface of the melted metal, is placed nearly horizontally; the melted metal is kept covered with slag, and is not disturbed by stirring. When the iron is judged to be sufficiently refined, and is grown solid, it is withdrawn from the furnace and forged. The natural steel made directly from the above mentioned ores, in small blast furnaces, is a good steel for ploughs and similar machines; the best of it is excellent for saws and cutlery. The most esteemed steel of this kind comes from Germany, and is made in Stiria. It is usually sold in chests or barrels, two and a half or three feet long.

STEELE, Sir Richard, the earliest of our modern British essayists, and who, in humour and liveliness of style, has not been surpassed by any of his successors, was born at Dublin, in 1671, of a family of English extraction. He was educated at the charter-house, whence he removed to Oxford. He left the university without taking a degree, and (a thing not unusual at that time with needy young men of good connexions), for some time rode as a private trooper in the dragoon guards. His frank and generous temper soon, however, gained him friends, and he obtained an ensigncy in the foot guards. Being led into many irregularities, he drew up and published a little treatise as a testimony against himself, entitled the Christian Hero, the seriousness of which excited much ridicule among his companions, his conduct falling far short of his theory. For this reason, as he himself observed, to enliven his character, he wrote his first comedy, entitled the Funeral, or Grief à-la-mode, which was acted in 1702, with considerable success. Through the recommendation of Addison, he was appointed, in the beginning of the reign of Anne, to the post of writer of the London Gazette. His comedy of the Tender Husband appeared in 1703, and his Lying Lover in 1704. In 1709, he began the periodical paper so celebrated under the title of the Tatler, which included a portion of the information of a common newspaper, but, in raciness of humour, and vivacity and urbanity of tone, was not, perhaps, exceeded by the most celebrated of its successors. As it sided with the existing ministry, and was extensively circulated, its projector was appointed one of the commissioners of the stamp duties. In 1711, the Tatler was succeeded by the still more celebrated Spectator, in which the assistance of Addison and other eminent writers was more regular than in its predecessor, although Steele, as before, supported the chief burden. The Spectator terminating, he commenced the Guardian, in 1713, and also produced a political periodical, called the Englishman, with several other political pieces of temporary celebrity. His object was now to obtain a seat in parliament, for which purpose he resigned his place in the stamp office, and a pension. He was accordingly elected for Stockbridge, but was soon after expelled the house for an alleged libel in the last number of the Englishman, and in another paper, called the Crisis. His expulsion being purely the result of ministerial resentment, he regained favour on the accession of George I., and received the appointments of surveyor of the royal stables, and governor of the king's comedians, and was knighted. He also again entered the house of commons as member for Boroughbridge, and received £500 from Sir Robert Walpole, for special services. On the suppression of the rebellion of 1715, he was appointed one of the commissioners for the forfeited estates in Scotland, when he busied himself in an abortive scheme for a union between the churches of England and Scotland. Devoid of all prudential attention to economy, although he married two wives successively with respectable fortunes, he was uniformly embarrassed in his circumstances. Always engaged in some scheme or other, few or none of which succeeded, he wasted his regular income in the anticipation of a greater, until absolute distress was the consequence. A scheme for bringing fish to market alive, in particular, involved him in much embarrassment, which was heightened by the loss of his theatrical patent, in consequence of his opposition to the peerage bill. He appealed to the public, in a paper called the Theatre, and, in 1720, honourably distinguished himself against the famous South sea scheme. He was restored, the following year, to his authority over Drury-lane theatre, and soon after wrote his Comedy of the Conscious Lovers, on a hint from Terence, first acted in 1722, and dedicated to the king, who rewarded the author with £500. His pecuniary difficulties, however, increasing, he retired to a seat in Wales, where a paralytic stroke impaired his understanding, and finally terminated his life, in 1729. Besides the works already mentioned, Sir Richard Steele published two periodical papers, called the Lover, and the Reader, as well as numerous political pieces.

STEELYARD; a kind of balance, called also the Roman balance, by means of which the gravities of different bodies are found, by a single weight being placed on the lever or beam, so as to secure an equilibrium, the notches and figures marked on it denoting the number of pounds.

STEEN, Jan, a distinguished painter, was born at Leyden, in 1636. He studied under Brouwer and Van Goyen, and married the daughter of the latter. Being imprudent and intemperate in his habits, he neglected all the advantages which lay in his way, until finally reduced to paint for a mere subsistence. He had a strong, manly style of execution, the result of native talent rather than of application, which, together with a fine feeling of humour, conducted him to a high degree of professional excellence. Among his capital pictures are a Mountebank surrounded with Spectators, a Quaker's Funeral, and a Marriage Contract. His works did not obtain an extraordinary price during his life; but, after his death, being far from numerous, they so rose in value as to become some of the highest priced of his peculiar school. His death is generally dated in 1689, but by Houbraken eleven years earlier.

STEENKERKE, or STEINKIRCHE, or STEENKERQUE; a village of Belgium, in Hainaut, thirteen miles north of Mons. Here a bloody battle was fought between the allies, commanded by William III., king of England, and the French. under the duke of Luxembourg, the 24th of July, 1692, in which the latter were victorious.

STEERAGE; an apartment before the great cabin, from which it is separated by a partition or bulk-head. In merchant-ships, it is generally the habitation of the inferior officers and crew; but in ships of war, it serves only as a hall or anti-chamber to the great or captain's cabin. *Steerage* is also used to express the effort of the helm. *Steerage-way* implies a sufficient degree of motion communicated to a ship for her to become susceptible of the effects of the helm in governing her course.

STEERING. See *Helm.*

STEEVENS, George, a dramatic critic and biographer, was born at Stepney, where his father, an East India director, resided, and educated at Cambridge. In 1766, he published twenty of the plays of Shakspeare, with notes, in 4 vols., 8vo. The skill which he displayed as a commentator induced doctor Johnson to take him as a coadjutor in his edition of the works of the great dramatist (1773, 10 vols., 8vo.) A new edition of the Shakspeare of Johnson and Steevens appeared in 1785; and, in 1793, Mr Steevens produced an enlarged and improved edition of the same work, in 15 vols., 8vo. He was one of the contributors to Nichol's Biographical Anecdotes of Hogarth; and he also assisted in the *Biographia Dramatica.* His death took place at Hampstead, January 22, 1800. Mr Steevens left a valuable library of dramatic and other English literature, of which a catalogue appeared after his decease.

STEGANOGRAPHY. See *Cryptography.*

STEIERMARK, or STEYERMARK. See *Stiria.*

STEIN, John Andrew, a distinguished organ and piano-forte maker, was born, in 1728, in the Palatinate, and died in 1792. He invented several musical instruments. His piano-fortes were sent all over Europe.

STEINKOPF, John Frederic, professor and court painter at Stuttgart, died in 1825, ninety-four years old. Many of his paintings, particularly horses, are in the royal castles.

STELLIONATE, in Roman law; the deceiving others to their pecuniary disadvantage. The Romans frequently used *stellionatus* to express all kinds of deceits that had no proper names.

STEM; a circular piece of timber, into which the two sides of a ship are united at the fore end: the lower end of it is scarfed to the keel, and the bowsprit rests upon its upper end; the ends of the wales and planks of the sides and bottom are let into a groove or channel cut in the middle of its surface from top to bottom. The outside of the stem is usually marked with a scale of feet answering to a perpendicular from the keel. The use of this scale is to ascertain the draught of water. *From stem to stern;* from one end of the ship to the other.

STEM, in botany. See *Botany.*

STEMMATA, in the history of insects, are three smooth, hemispheric dots, placed generally on the top of the head, as in most of the *hymenoptera* and other classes.

STENOGRAPHY (from *στενος*, narrow, and *γραφω*, I write); the art of writing in abbreviations and with many arbitrary signs to denote whole syllables, words, and phrases, so that the writing may occupy but little room, and be executed with much more rapidity than is possible in the common mode. *Tachygraphy* (from ταχυ, quickly, and γϱαφω) signifies the same art, as far as its object is expedition; and as this is generally the chief thing aimed at, and the use of abbreviations is only the means, *tachygraphy* would be the preferable name, yet *stenography*, or *short-hand*, has been generally adopted. Even the Greeks and Romans made use of this art, though in an imperfect state, for the sake of taking down oral discourses. Their stenography consisted of a number of arbitrary signs, not reduced to rules, which, of course, rendered the learning of it very difficult. In the eighteenth century, professor Taylor of Oxford reduced stenography to rules, and Bertin, in France, simplified it still more. In 1824, appeared, in Paris, the fourth edition of Conen de Perpéan's *Sténographie*, and the second edition of Grosselin's *Vocabulaire Sténographique*, with a theory. William Harding's Universal Stenography, on Taylor's principles (London, 1825), is the most complete work on this subject, on which nearly 100 works have appeared in England during the two last centuries. The reporters of the parliamentary debates for the English newspapers do not make much use of stenography. See *Newspapers*.

STENTOR; a warrior of the Greek army before Troy, of whom Homer tells us that his voice was equal to that of fifty others; hence the phrase a *Stentorian* voice. Juno assumed his form, and encouraged the Greeks to fight valiantly against the Trojans.

STENWYCK, or **STEENWYCH**, **Henry**, the elder, born at Steenwych, in Flanders, in 1550, was the disciple of John de Vries; and, following the steps of his master, he became celebrated for his delineation of the insides of convents and churches of Gothic architecture, viewed by the light of torches or lustres, to which his perfect knowledge of *chiaro-scuro*, and the lightness and delicacy of his pencil, gave a surprising effect. His pictures are very rare, and bear a high price He died in 1603.

Henry Stenwyck, the younger, son and pupil of the preceding, copied his father's manner, and was thought frequently to equal him. He was introduced by Vandyke to the court of Charles I.; and he painted many pictures in England, where he died, in what year is unknown.

STEPHEN. Besides the first martyr of the Christian church, who was stoned to death (Acts vi. 9—15, and vii. 53—60), there are two saints of this name—Stephen I., a pope and martyr of the third century, and Stephen I., king of Hungary, who, towards the end of the tenth century, introduced the Christian religion into his dominions, and was therefore canonized. His successors received from the pope the title of apostolic majesty, which is still borne by the emperor of Austria, as king of Hungary.

STEPHEN, king of England, son of Stephen count of Blois, by Adela, fourth daughter of William the Conqueror, was born in 1104, and invited, when young, into England by his uncle Henry I., who gave him the earldom of Mortaigne, in Normandy, and large estates in England. He likewise procured for him in marriage the heiress of Eustace, count of Boulogne. For these favours Stephen professed the most grateful attachment to the king, and was most zealous in taking the oath for securing the succession to Henry's daughter, the empress Matilda, or Maud. No sooner, however, did that monarch's death take place than he hastened from France to England, and laid claim to the crown for himself. (See *Henry I.*) Having ingratiated himself with both nobles and people, he was at once received as king in London; and the concurrence of the clergy was obtained by Stephen's brother, the bishop of Winchester, aided by the oath of a nobleman of the late king's testifying his intentions in favour of his nephew, while on his death bed. David, the king of Scotland, marched an army into England, and Carlisle and the county of Cumberland formed the price which Stephen was obliged to pay for peace. He was, however, able to subdue the opposition of the nobles of England, and was also invited by the barons to take possession of the duchy of Normandy. Another war with Scotland followed, which was terminated by the battle of the Standard, in which the Scots were entirely defeated by the northern barons. The empress Matilda landed in England, with her brother, the earl of Gloucester, and, being joined by several powerful barons, a civil war ensued, which proved one of the most calamitous in the English annals. Stephen performed his part with vigour and courage, but, being taken prisoner in 1141, his party was broken up, and Matilda was acknowledged queen. The haughty conduct of the new sovereign excited an insurrection against her government; and, being invested in Winchester castle, she escaped with difficulty, while the earl of Gloucester was taken prisoner. Stephen was exchanged for the earl, and the war was renewed. Matilda was induced, by the death of the earl, to retire to Normandy; and the contest was carried on by her son, Henry Plantagenet, who, in 1153, landed an army in England, and was joined by the barons of his mother's party. An armistice, however, took place, and it was agreed that Stephen should reign during his life, that Henry should succeed him, leaving to William, the son of Stephen, his father's patrimonial estates. On the death of the king, the following year, Henry quietly ascended the throne. (See *Henry II.*) Stephen died in the fiftieth year of his age, and the nineteenth of his uneasy reign. Had he succeeded fairly to the throne, he possessed talents which would have enabled him to fill it with honour. His resistance to the encroachments of the clergy and the see of Rome were spirited and creditable; and he was active and able both in the cabinet and the field.

STEPHEN BATHORI, one of the most distinguished kings of Poland, was descended of a noble family in Transylvania, where he was born in 1532. His prudence and courage had already (1571) raised him, through the suffrages of his countrymen, to the dignity of prince of Transylvania when, on the death of Sigismund, a powerful party in Poland, under count Zamoyski, called him to the Polish throne. Another party had chosen the emperor Maximilian II.; but Stephen was gradually joined by the whole nation, and the death of Maximilian left him without a competitor. He maintained the royal dignity with vigour, and defended the kingdom successfully from foreign enemies. After three successful campaigns against the Russians, who had invaded Livonia, he forced the czar Ivan II. (1582) to restore all his conquests in that province; he obliged the Cossacks to submit to the Polish laws, and established three supreme tribunals of justice for the whole kingdom. His toleration was shown in his mildness towards his Protestant subjects, and, when urged to extirpate heresy in his dominions, he replied, that there were three things which God only could do—to make something of nothing, to foresee the future, and to command consciences. He died December 12, 1586, after a reign of ten years, and in the 54th year of his age, probably of poison.

STEPHENS, OR STEPHANUS (the English and Latin forms of Estienne); the name of two distinguished scholars and printers. *Robert*, born in 1503, at Paris, devoted himself to learned studies. He possessed a profound knowledge of Latin, Greek and Hebrew, as the works edited by him in those languages evince. After his father's death, he was for several years connected with Simon de Collines, and superintended an edition of the New Testament, which was more correct and of a more convenient form than any which had yet appeared. The rapid sale of this edition disturbed the doctors of the Sorbonne, who only wished for a pretence to forbid the dissemination of a book, from which the adherents of the new doctrines, which Stephens embraced, drew all their arguments. Robert soon after married Petronella, the daughter of the printer Jodocus Badius Ascensius, who was so well acquainted with Latin, that she taught it to her children and servants; and there was no person in the house who did not speak Latin fluently. About 1526, Stephens erected a press in his own name, from which proceeded a series of the most valuable works. Most of his editions of the Greek and Roman classics were enriched with notes and valuable preliminary treatises. He endeavoured to attain the greatest possible correctness, and for this purpose hung up his proof-sheets publicly, and offered a reward for the discovery of errors. At first he printed with the types of his father and Simon de Collines; but about 1532 he had a handsomer type cast, with which he printed the elegant Latin Bible, dated that year. This drew upon him new persecutions, which, however, were averted by the protection of king Francis I., and by his promising to print nothing more without the consent of the Sorbonne. In 1531, he published the first edition of his excellent *Thesaurus Linguæ Latinæ*, which he improved in every successive impression, and which Gessner has since taken as the basis of his. In 1539, he was appointed printer of Latin and Hebrew to the king. At his request, Francis I. caused the beautiful types to be cast, which are still in possession of the royal press at Paris. The new attacks which he suffered, in consequence of his Bible of 1545, were rendered harmless for a time by the favour of the king; but after his death they were renewed with increased violence, and Stephens was at length forced to abandon France. In 1552, he went to Geneva, where, in connexion with his brother-in-law, he printed the New Testament in French, and established a new press of his own, from which several valuable works were issued. He died in 1559. His Hebrew Bibles (4 vols., 4to., and 8 vols , 16mo.); the Latin Bible (folio, 1538—40); the New Testament (folio, 1550), which was formerly regarded as the most beautiful Greek book ever printed; his *Historiæ Ecclesiasticæ Scriptores; Eusebii Preparatio et Demonstratio Evangelica;* his Dionysius of Halicarnassus; Dio Cassius (first complete edition); and his Terence, Cicero, Plautus, &c., are highly esteemed.

Equally celebrated is the son, *Henry*, born at Paris, in 1528. He was distinguished for his talents, and devoted himself particularly to the study of Greek. The celebrated Peter Danes was his instructor. He also enjoyed the teaching of one Tusanus Turnebus, and in a short time became one of the most able Hellenists of his age. His rapid progress in the Latin language is shown by his annotations on Horace, published at the age of twenty years. He likewise studied the mathematical sciences with zeal. In 1547, he went to Italy, to avail himself of the treasures contained in the libraries at Florence, Rome, Naples, and Venice, and brought away several valuable copies of the classics. He also visited England and the Netherlands, and returned to Paris in 1552, just as his father was on the point of setting out for Geneva. He perhaps accompanied him thither; but, in 1554, he was in Paris again, where, in consequence of the privilege granted to his father by Francis I., he applied for permission to establish a press. The same year he again visited Italy, to collate the manuscripts of Xenophon and Diogenes Läertius; and, at the beginning of 1557, he commenced the publication, from his own press in Paris, of some of the works which he had procured with so much labour and care. He would, however, have been unable to meet the expense, had he not been assisted by Ulrich Fugger, out of gratitude to whom he called himself, till the death of his patron, Fugger's printer. The death of his father, in 1559, filled him with grief; but his marriage roused him to fresh exertions. In consequence of his attachment to the new doctrines, his peace was often disturbed, and his labours interrupted. In 1566, he republished Valla's Latin translation of Herodotus, with a preface, in which he defended the father of history from the reproach of credulity. Robert Stephens had already begun to collect materials for a Greek dictionary; Henry pursued the arduous work, and, in 1572, produced his still unrivalled *Thesaurus* of the Greek Language, which is a treasure of learning and criticism, and would alone suffice to secure its author permanent fame. An edition of the *Thesaurus* has lately been published in London (1816—26), with the additions of several philologists; and new editions have recently been published by Hase at Paris, and, with the additions of Dindorf, at Leipsic. The high price of this work, and the abridgment published by Scapula soon after its appearance, made the sale extremely slow; and the author became greatly embarrassed. He then went to Germany, either for the purpose of recreation, or to seek new means of support. Henry III. granted him, on account of his work *De la Précellence du Langage François*, a reward of 3000 livres, and a pension of 300 livres, to enable him to continue his examination of ancient manuscripts, and treated him with great distinction; but this money was probably never paid him. At any rate, Stephens continued in embarrassed circumstances, and finally retired from court, in order to occupy himself more advantageously, and lived at Orleans, Paris, Frankfort, Geneva, and Lyons. On a journey to the latter place, he fell sick, and died in the hospital, in 1598, apparently deranged. Such was the end of one of the most learned and indefatigable scholars, who is pre-eminent for the services which he rendered to the cause of ancient literature. His impressions are not so handsome as those of his father, but they are equally valuable in correctness and matter, and exceed them in number. His editions of the classics have served as the basis of the text of almost all subsequent ones; and the charge that he tampered with the text of authors arbitrarily, is without foundation. He made Latin verses with great facility. He was lively and affectionate in his feelings, fond of gayety and wit, but impatient of contradiction; he indulged himself in caustic epigrams upon his opponents. Among his numerous editions, the principal are, *Poetæ Græci, Principes Heroici Carminis* (1566, folio); *Pindari et cæterorum octo Lyricorum Carmina* (1560, 1566, 1586, 24mo.); also editions of Maximus Tyrius, Diodorus, Xenophon, Thucydides, Herodotus, Sophocles, Æschylus, Diogenes, Laërtius, Plutarch, Apollonius Rhodius, Callimachus, Plato, Herodian, and Appian, Horace, Virgil, Pliny the younger, Gellius, Macrobius, the collection of Roman historians, &c. He translated many Greek authors into Latin. He also produced numerous other valuable works.

STEPPE (from the Russian *step*, a desert; also a dry plain). The steppes of Russia, which are not unlike the *landes* of Guienne, in France, and the heaths of Northern Germany, are in part susceptible of cultivation; and they afford pasturage for the numerous herds of the nomadic tribes. In the extensive steppes of Astrachan, between the Volga and the Ural, the Calmucs and Nogay Tartars rove with their cattle. They produce several sorts of flowers, herbs, and are frequented by wild goats and birds.

STERE. See *French Decimal System.*

STEREOGRAPHIC PROJECTION. See *Projection of the Sphere.*

STEREOMETRY (from στερεος, solid, and μετρον, measure); literally, the measure of solids; a branch of geometry, the name of which would make it applicable to the measurement of all solids, but which, in fact, is limited, by elementary geometry, to a certain number, and is made to embrace other qualities in addition to their solid contents. The solids of which it treats, are those inscribed within plane surfaces, and a few inscribed within curved surfaces, viz. the cylinder, cone, and sphere: all the others it leaves to the higher geometry. A solid, in geometry, is that which has length, breadth, and thickness. If the body in question is a prism, its height indicates how many layers, each equal to its base, must be laid one above the other, in order to form the solid figure; in other words, the contents of the prism are equal to the product of the height multiplied by the base. The same is the case, as will be readily seen, with the cylinder. A prism of three sides may be divided, as is easily shown by actual cutting, into three pyramids, each of three sides, of the same height and base with the prism. A prism of many sides, and a pyramid of many sides, may be divided into as many three-sided prisms or pyramids as the base has sides; hence the contents of every pyramid are equal to a third of the product of the height multiplied by the base. The same is the case with the cone, which has a circle for its base, i. e. a polygon of innumerable sides, and, therefore, can be considered as a pyramid. A sphere may be considered as composed of an infinite number of pyramids, all of which have their vertices in the centre of the sphere: its contents, therefore, are equal to a third of the product of its surface (which makes the sum of the bases of all these pyramids) and its radius. These are the chief points of stereometry; but it also teaches how to compare the various solids with each other, and to ascertain their superficial contents. See Hossfeld's *Lower and Higher Practical Stereometry* (1812, 4to.); see, also, the article *Stereometry* in the fourth volume of Klügel's Mathem. Dictionary (in German), by Mulweide (Leipsic, 1823).

STEREOTYPE, from the Greek στερεος, *firm, standing firm*, and τυπος, *figure, form;* is the name applied to a species of printing, which, within the present century, has come to be extensively practised. The ordinary method of printing has been fully described under the article *Printing.* Stereotype printing consists in casting, by means of a stucco mould, a representation of the superficies of arranged types, which, being fitted to a block, may be used under the press exactly as types are used, and, being retained, may serve at any time to throw off an additional impression. The invention of stereotype seems properly to belong to William Ged, a goldsmith of Edinburgh, who is said to have attempted stereotyping in the year 1725. In July, 1729, Ged entered into a partnership with William Fenner, a London stationer, allowing Fenner half the profits of his invention, in consideration of his advancing the necessary funds. Afterwards, Mr John James, an architect, was taken into the scheme for the same purpose, as was likewise Mr Thomas James, a letter-founder, and Mr James Ged, the inventor's son. In 1730, this company applied to the university of Cambridge for printing Bibles and common-prayer books, by stereotype, and the lease was sealed to them, April 23, 1731. In their attempt they sank a large sum of money, and finished only two prayer books, so that it was forced to be relinquished, and the lease was given up in 1738. Ged imputed his want of success to the jealousy of the workmen, in marring the plates, and the bad conduct of his partner, Fenner. He returned to Edinburgh with blighted prospects, but still prosecuting his invention, published in 1744, a stereotype edition of Sallust, bearing the following imprint: "*Edinburgi, Gulielmus Ged, Aurifaber, Edinensis, non typis mobilibus, ut vulgo fieri solet, sed tabellis seu laminis fusis, excubebat,* MDCCXLIV." Some of the original plates of this work are still extant in our museums, and a page may be seen among the curiosities preserved in Fingask castle, Perthshire. Ged, like many other ingenious men, died in reduced circumstances, before the utility of his invention was appreciated, October 19, 1749. Two of his sons, William and James, settled in Jamaica as printers.

About thirty years after the death of Ged, Mr Tilloch, without having at the time any knowledge of Ged's discovery, made a similar one of his own; and with the assistance and joint labour of Mr Foulis, printer to the university of Glasgow, he greatly improved upon the invention, after many experiments and much labour. "Though we had reason to fear," says Mr Tilloch, "from what we afterwards found Ged had met with, that our efforts would experience a similar opposition from prejudice and ignorance, we persevered in our object for a considerable time, and at last resolved to take out patents for England and Scotland, to secure for ourselves, for the usual term, the benefits of our invention; for the discovery was still as much our own as if nothing similar had been practised before." The patents were accordingly obtained; but owing to circumstances of a private nature, the business was for a time laid aside, and the concern was at length dropped entirely, after Mr Tilloch's removal from Glasgow to London. Prior to this, however, a number of small volumes had been stereotyped and printed under the direction of Messrs Tilloch and Foulis.

Firman Didot, the celebrated French printer, sometime afterwards applied the stereotype art to logarithmic tables, and then to some of the Latin classics, as well as to a number of French publications. His original method of stereotyping differed much from that now in use. He took movable letters, differing from the common ones only by being somewhat shorter, and of a harder substance. These were set in the usual way; the proof sheets were then printed and corrected, till the whole copy was as free from errors as possible. Then every page set with these hard letters was pressed upon a plate of properly prepared metal. These plates served as matrices for whole pages; and the letters of the hard substance, mentioned above, might now be separated from each other, set anew, and used to form other matrice-plates. A page which served for a matrice was pressed upon melted type-metal, which, hardening immediately, served for printing. In this manner was Callet's logarithmic tables printed in 1795.

To the patronage of earl Stanhope the art of stereotyping is greatly indebted for its improvement and general adoption in this country. It is said that his lordship was instructed in the mystery by Mr Tilloch, and afterwards had, at his estate of Chevening, the personal attendance of Mr Foulis for several months. Mr Wilson, a respectable printer in London, engaged with earl Stanhope, some years after this, in prosecuting experiments towards the improvement of the art; and in January, 1804, Mr Wilson laid before the university of Cambridge the result of their experiments in stereotyping, with offers to execute by stereotype the Cambridge bibles, testaments, and prayer books. Some difference, however, arose between the syndics of the university and Mr Wilson, on which occasion the latter published his case in a stereotyped pamphlet, entitled, "Arbitration between the university of Cambridge and Andrew Wilson."

By degrees, the benefits of stereotyping began to be understood, and within the last twenty years, it has come to be adopted in the production of numerous works, particularly standard authors, for whom there is a continued demand, and works published in parts or numbers. In the case of a book in general use, such as the Bible, and also in cases where the publication takes place in numbers, and one number is in danger of being sold to a greater extent than another, stereotyping is of vast utility. It may, indeed, be pronounced absolutely necessary to the production of cheap books in large numbers, and therefore a most important auxiliary in the diffusion of knowledge by the printing-press. It saves the publisher from printing more copies at a time than may be required, or from the necessity of a new composition of types for every new demand. In some cases, too, by casting more plates than one, the same work may be printed in different parts of the world at the same time, without the cost of a different composition of types for each place, and so as to avoid the carriage of printed sheets from one quarter to another.

We shall now briefly describe the process of stereotyping, as at present generally practised. Stereotyping is distinctly superadded to the work of printing from movable types (described under *Printing*), and forms a middle operation between the labours of the compositor and the pressman. The first point in stereotyping is that of taking a mould from each page of movable types. The pages are not arranged as they would be combined in a sheet, and wedged up together in one iron frame or chase, but each page is put in a separate chase. It is essential that the face of the types should be perfectly clean and dry, and that no particle of dirt or other substance should attach to the bottom of the types, so as to prevent them being level upon the surface. The page is now placed upon the lower part of a moulding-frame. The upper part of the frame is somewhat larger than the page, and the margin of mould thus formed determines the thickness of the plates. The types having been previously rubbed over with an oily composition, plaster of Paris is poured evenly over the whole surface. This substance, from a liquid state, soon becomes perfectly solid. Much nicety is required from the workman, in forming the mould, and in removing it from the type. If any part of the plaster adheres to the face of the type, the mould is imperfect, and the operation must be gone over again. Having been removed and found perfect, it requires some dressing with a knife on its edges, and several notches are cut in the margin to allow the metal to enter the mould. It is now fit for baking. This process also requires much care. The oven in which the moulds are placed must be kept at a very regular temperature; for if it be too hot, the moulds warp. The process of casting begins when the moulds have been baked sufficiently long to be perfectly dry and hard. At the bottom of the pot is a movable plate of cast-iron, called a floating-plate; and upon this plate the mould is placed with its face downwards. Upon the back of the mould rests the cover of the casting-box, which is held tightly down upon the mould by a screw. The apparatus for plunging the casting-box into the metal pit is attached to a crane, and is so constructed as to swing with a perfectly horizontal motion. The casting-pot, with the mould, being suspended over the metal pot, is gradually forced down into the metal, and there kept steady by a lever and weight. The lid of the casting-box is cut off at the corners; and it is through these spaces that the metal enters the box, and insinuates itself into every hollow. After having remained immersed for about ten minutes, it is steadily lifted out by the crane, and swung to a cooling trough, in which the under side of the box is exposed to water. Being completely cooled, the workman proceeds to remove the mould from the casting-box. The plaster-mould, the plate moulded, and the floating-plate, are all solidly fixed together. The metal, by its specific gravity, has forced itself under the floating-plate, which it has driven tightly up against the ledges of the mould. The mould has in the same way been tightly driven up against the lid of the casting-box. The notches in the ledges of the mould have, at the same time, admitted the metal into the minutest impression from the face of the types. The caster or workman now breaks off the superfluous metal and the ledges of the mould with a wooden mallet. The mould is necessarily destroyed; and if another plate is required, another mould must be taken from the types. After the superfluous metal and the plaster are removed, the stereotype plate comes out, and is then prepared for the press. Its proper thickness cannot be determined by the mould alone; and the back of the plate is therefore turned in a lathe, in which the plate revolves against a cutting tool, and a perfectly true surface is obtained by the superfluous parts being cut away in a series of concentric circles. Besides this, the very best casting cannot prevent occasional defects in the face of the plate, and it requires therefore to be minutely examined by workmen called *pickers*. It is the business of the picker to remove the small globules of metal which occasionally fill up or bloat the letters; to insert a new letter, which he can do by soldering, if any one be broken; and even to make an alteration of a word or a line, if it should be found necessary. Such, indeed, is the dexterity of a good picker, that a stereotype plate is much more open to correction and alteration than might be imagined; while it has this advantage over ordinary letterpress, that when accuracy is once obtained, the plate is not afterwards liable, as movable types are, to get deranged.

STERLING; an epithet of English money of account. It is by some derived from *easterling*, a name by which the Hanseatics were called in some of the western countries of Europe; others derive it from the Anglo-Saxon *steore* (rule, or law). See *Coins*.

STERN; the posterior part of a ship, or that part which is presented to the view of a spectator, placed on the continuation of the keel, behind.

STERN-POST; a long, straight piece of timber, erected on the extremity of the keel, to sustain the rudder and terminate the ship behind. It is usually marked, like the stem, with a scale of feet, from the keel upwards, in order to ascertain the draught of water abaft.

STERNE, Lawrence, the author of Tristram Shandy, was the son of a lieutenant in the army, and born at Clonmell, in Ireland, in November, 1713. He was put to school at Halifax, in Yorkshire, in 1722, whence he removed to Cambridge, and studied for the church. He took his degree of master of arts in 1740, before which he was advanced; and, by the interest of doctor Sterne, his uncle, a prebendary of Durham, he obtained the living of Sutton, a prebend of York, and, subsequently, by the interest of his wife, whom he married in 1741, the living of Stillington, at which, and at Sutton, he performed the clerical duties for nearly twenty years. During this period, he appears to have amused himself with books, painting, music, and shooting, but was little known beyond his vicinity, the only production of his pen being his humorous satire upon a greedy church dignitary of York, entitled the History of a Watch Coat. In 1759, following, appeared the two first volumes of his celebrated Tristram Shandy, which drew upon him praise and censure of every kind, and became so popular that a bookseller engaged for its continuance on very lucrative terms. Accordingly a third and fourth volume appeared in 1761, a fifth and sixth in 1762, a seventh and eighth in 1764, and a ninth, singly, in 1766. If, in the groundwork of this extraordinary production, a resemblance may be traced to the ridicule of pedantry and false philosophy in Scriblerus, the style and filling up are chiefly his own, although he borrowed entire passages from Burton's Anatomy of Melancholy, and the works of bishop Hall and others. In 1768, he produced his Sentimental Journey (in 2 vols., 12mo.), which, by a number of pathetic incidents, and vivid strokes of national and characteristic delineation, is rendered extremely entertaining, and acquired a more general reputation than even its predecessor. In 1760, appeared two volumes of Sermons of Mr Yorick, to which he added two additional volumes in 1766, with his own name. He died of pulmonary consumption, in March, 1768, leaving a widow and one daughter. The latter, who was married to a French gentleman, published a collection of her father's letters, in three volumes, 12mo., to which were prefixed memoirs of his life and family. In the same year, an anonymous editor published Letters between Yorick and Eliza, which were regarded as the authentic correspondence, in a strain of high sentimental friendship, between Sterne and Mrs Draper, an accomplished East India lady. His private character was by no means honourable to his genius, affording another proof that the power of expressing and conceiving strong feelings by no means implies that they will influence the conduct.

STERNHOLD, Thomas; the principal author of the metrical version of the Psalms long used in public worship in our churches, and not yet entirely discontinued. He was a native of Hampshire, and educated at Oxford, and became groom of the robes to Henry VIII., who left him a legacy of 100 marks. He held a similar office under Edward VI., in whose reign he died, in August, 1549. The principal coadjutor of Sternhold, in his versification of the Psalter, was John Hopkins; and the names of these persons have become a proverbial designation of bad poets. Sternhold also produced Certayne Chapters of the Proverbs of Solomon, drawn into Metre, which were published after his death.

STERNUTATION. See *Sneezing*.

STESICHORUS; a Greek lyric poet, born at Himera, in Sicily, about B. C. 612. He composed a number of works, which were highly esteemed by the ancients. Horace speaks of *Stesichori graves camœnæ;* and Dionysius Halicarnassus says, that he had all the graces of Pindar and Simonides, while he surpassed them both in the grandeur of his subjects. He was the first who introduced into the ode the triple division of strophe, antistrophe, and epode; and he is said to have thence derived his name, which was before Tisias. A few fragments of his works, to the amount of fifty or sixty lines, alone remain. See Kleine's *Stesichori Fragmenta* (Berlin, 1828), with a preliminary treatise.

STETHOSCOPE (from *στηθος*, chest); an instrument consisting of a short tube, widening towards one end, with which physicians have, for some years, been accustomed to examine the internal state of the human body (i. e. in diseases of the lungs and other internal organs, also in hernia, and the condition of women in pregnancy, &c.), by applying the stethoscope to the chest or abdomen, and putting the ear to the narrower end. Many disorders may be distinguished very clearly in this way; and the instrument has proved, in the hands of many physicians, a useful invention. See Laennec, *Auscultation Médiate* (Paris, 1819).

STETTIN; a town of Prussia, capital of Pomerania, and of a government and circle of the same name, situated on the Oder, about sixty miles from the Baltic, eighty miles north-east of Berlin; lon. 14° 46′ E.; lat. 53° 20′ N. It stands on an eminence on the left bank of the Oder, and has three suburbs, five gates, and several squares. The principal public buildings are the castle, government house, arsenal, barracks, hospitals, exchange, theatre, and public library. It has five Lutheran churches, an academical gymnasium, college, &c. Population, 32,191. Stettin is a place of extensive trade, the great outlet of the manufactures of Silesia, and the depot of colonial goods and foreign fabrics required by that province, as well as by Berlin, and other towns in Brandenburg. The number of vessels entered here, in 1814, was 1534; cleared, 1180. Vessels drawing more than seven feet water stop at Swinemunde. (See *Oder.*) The leading articles of export are linen, corn, and timber; of imports, coffee, sugar, cotton, dye-woods, and wine. The manufactures are very various.

STEUBEN, Frederick William Augustus, baron von; a distinguished Prussian officer, who attached himself to the American cause in the revolution of 1776. He had been aid-de-camp to Frederic the Great, and had attained the rank of lieutenant-general in his army. Sacrificing his honours and emoluments in Europe, Steuben went to America in 1777, and tendered his services to congress, as a volunteer in their army, without claiming any rank or compensation. He received the thanks of that body, and joined the main army under the commander-in-chief at Valley Forge. Baron Steuben soon rendered himself particularly useful to the Americans, by disciplining the forces. On the recommendation of general Washington, congress, in May, 1778, appointed the baron inspector-general of the army, with the rank of major-general. His efforts in this capacity were continued with remarkable diligence, until he had placed the troops in a situation to withstand the enemy. In the estimates of the war office, 5000 extra muskets were generally allowed for waste and destruction in the army; but such was the exact order under the superintendence of Steuben, that in his inspection return, but three muskets were deficient, and those accounted for. A complete scheme of exercise and discipline, which he composed, was adopted in the army by the direction of congress. He possessed the right of command in the line, and at one period was at the head of a separate detachment in Virginia. At the battle of Monmouth, he was engaged as a volunteer. When reviewing the troops, it was his constant custom to reward the disciplined soldier with praise, and to pass severe censure upon the negligent. Numerous anecdotes are related illustrative of the generosity, purity, and kindness of his disposition. After the treacherous defection of Arnold, the baron held his name in the utmost abhorrence. One day he was inspecting a regiment of light horse, when that name struck his ear. The man was ordered to the front, and presented an excellent appearance. Steuben told him that he was too respectable to bear the name of a traitor; and at his request the soldier adopted that of the baron, whose bounty he afterwards experienced, and brought up a son by the same name. At the siege of Yorktown, baron Steuben was in the trenches at the head of a division, where he received the first offer of lord Cornwallis to capitulate. The marquis de la Fayette appeared to relieve him in the morning; but, adhering to the European etiquette, the baron would not quit his post until the surrender was completed or hostilities recommenced. The matter being referred to general Washington, the baron was suffered to remain in the trenches till the enemy's flag was struck. After the capture of Cornwallis, when the superior American officers were paying every attention to their captives, Steuben sold his favourite horse in order to raise money to give an entertainment to the British officers, as the other major-generals had previously done. His watch he had previously disposed of to relieve the wants of a sick friend. On another occasion, when he desired to reciprocate the invitation of the French officers, he ordered his people to sell his silver spoons and forks, saying it was anti-republican to make use of such things, and adding, that the gentlemen should have one good dinner if he ate his meals with a wooden spoon for ever after. Steuben continued in the army till the close of the war, perfecting its discipline. The silence and dexterity of his movements surprised the French allies. He possessed the particular esteem of general Washington, who took every proper opportunity to recommend him to congress; from which body he received several sums of money, that were chiefly expended in acts of charity, or in rewarding the good conduct of the soldiers.

Peace being established, the baron retired to a farm in the vicinity of New York, where, in the society of his friends, and the amusements of books and chess, he passed his time as comfortably as his exhausted purse would allow. The state of New Jersey had given him a small farm, and that of New York 16,000 acres of land in the county of Oneida. The exertions of colonel Hamilton and general Washington subsequently procured him an annuity of 2500 dollars, from the general government. He built a log house, and cleared 60 acres of his tract of land, a portion of which he partitioned out, on easy terms, to twenty or thirty tenants, and distributed nearly a tenth among his aid-de-camps and servants. In this situation he lived contentedly, until the year 1795, when an apoplectic attack put an end to his life, in his sixty-fifth year. An abstract of his system of military manœuvres was published in 1779. The year preceding his death, he published a letter on the established militia and military arrangements.

STEVENS, George Alexander, a whimsical and eccentric character, was born in London, and brought up to a mechanical business, which he quitted to become a strolling player. In 1751, he published a poem entitled Religion, or the Libertine Repentant, which was succeeded in 1754, by the Birthday of Folly. These were followed by a novel called Tom Fool, and the Dramatic History of Master Edward and Miss Ann. He subsequently invented his entertainment, called a Lecture on Heads, which possessed no small portion of drollery, and became very popular. Several of his songs have also been much admired.

STEWARD. The lord high steward of England was formerly an officer who had the supervision and regulation, next under the king, of all affairs of the realm, both civil and military. The office was hereditary, belonging to the earls of Leicester until forfeited to Henry III. (See *Montfort.*) The power of this officer was so great, that the office has for a long time only been granted for some particular act, as the trial of a peer on indictment for a capital offence, the solemnization of a coronation, &c. The lord high steward is the first of the nine great officers of the crown. The *lord steward* of the household is the chief officer of the king's household: his authority extends over all officers and servants of the royal household except those of the chamber, chapel, and stable. Under the lord steward, in the counting-house, are the treasurer of the household, cofferer, controller, clerks of the green cloth, &c. It is called the *counting-house*, because the household accounts are kept in it. See *Courts.*

STEWARD in naval affairs, is an officer in a ship of war, appointed by the purser to distribute the different species of provision to the officers and crew.

STEWART, Sir James Denham, an eminent political writer, was born at Edinburgh, Oct, 10, 1713. His father was solicitor general of Scotland. After having been admitted to the bar, he travelled on the continent five years, and formed an intimacy with the Pretender, whom he aided in his attempt in 1745. On the failure of that attempt, Stewart retired to France, and in 1755, to Flanders. Here he published a Vindication of Newton's Chronology, a Treatise on German Coins, and a Dissertation on the Doctrine and Principles of Money. He returned to Scotland in 1763, where he was allowed to remain unmolested, and concluded his Inquiry into the Principles of Political Economy—a work of much research and acuteness, though the style and method are imperfect. He obtained a full pardon in 1771, and afterwards published various works of a philosophical and politico-economical character. His complete works were published in 1805 (in 6 vols., 8vo.). He died in 1780.

STEWART, Dugald, a celebrated metaphysical writer, was born in the college of Edinburgh, on the 22nd of November, 1753, his father being professor of mathematics in that university. At the age of seven, he was sent to the High School, where, having completed the customary course of education at that seminary, he was entered as a student at the college of Edinburgh. In 1771, he removed to the university of Glasgow, in order to attend the lectures of Dr Reid, who was then in the zenith of his reputation. The progress which he here made in metaphysical studies was great, and it was here that he composed during the session, his admirable Essay on Dreaming, which was afterwards published in the first volume of the "Philosophy of the Human mind." The declining state of his father's health compelled him, in the autumn of the following year, before he had reached the age of nineteen, to undertake the task of teaching the mathematical classes in the Edinburgh university. As soon as he had completed his twenty-first year, he was appointed assistant and successor to his father, and in this capacity he continued to conduct the mathematical studies in the university till his father's death, in the year 1785, when he was nominated to the vacant chair. Although this continued, however, to be his ostensible situation in the university, his avocations were more varied. In the year 1778, during which Dr Adam Ferguson accompanied the commissioners to America, he undertook to supply his place in the moral philosophy class; a labour, which, although he came to it unprepared, he performed with the most distinguished success.

In the summer of 1783, he visited the continent for the first time, having accompanied the late marquis of Lothian to Paris; on his return from whence, in the autumn of the same year, he married Helen Bannatyne, daughter of Neil Bannatyne, Esq., a merchant in Glasgow, by whom he had one son. In the year 1785, during which Dr Matthew Stewart's death occurred, the health of Dr Ferguson rendered it expedient for him to discontinue his official labours in the university, and he accordingly effected an exchange of offices with Mr Stewart, who was transferred to the class of moral philosophy, while Dr Ferguson retired on the salary of mathematical professor. In the year 1787, Mr Stewart was deprived of his wife by death; and, the following summer, he again visited the continent, in company with the late Mr Ramsay of Barnton.

In 1790, after being three years a widower, he married Helen D'Arcy Cranstoun, a daughter of the honourable Mr George Cranstoun, a union to which he owed much of the subsequent happiness of his life. In the year 1792, he first appeared before the public as an author, at which time the first volume of the Philosophy of the Human Mind was given to the world. In 1793, he read before the Royal Society of Edinburgh, his account of the Life and writings of Dr Adam Smith. In the course of this year also, he published the Outlines of Moral Philosophy; a work which he used as a text book, and which contained brief notices, for the use of his students, of the subjects which formed the matter of his academical prelections. In March, 1796, he read before the Royal Society his account of the Life and Writings of Dr Robertson, and in 1802, that of the Life and Writings of Dr Reid. By these publications alone, which were subsequently combined in one volume, quarto, he continued to be known as an author till the appearance of his volume of Philosophical Essays in 1810.

In the period which intervened between the publication of his first volume of the Philosophy of the Human Mind, and the appearance of his Philosophical Essays, he produced and prepared the matter of all his other writings, with the exception of his Dissertation on the Progress of Metaphysical and Ethical philosophy, prefixed to the Supplement of the Encyclopædia Britannica. Independent of the prosecution of those metaphysical inquiries, which constitute the substance of his second and third volumes of the Philosophy of the Human Mind, to this epoch of his life are to be referred the speculations in which he engaged with respect to the science of political economy, the principles of which he first embodied in a course of lectures, which, in the year 1800, he added as a second course to the lectures which formed the immediate subject of the instruction previously delivered in the university from the moral philosophy chair. So general and extensive was his acquaintance with almost every department of literature, and so readily did he arrange his ideas on any subject, with a view to their communication to others, that his colleagues frequently, in the event of illness or absence, availed themselves of his assistance in the instruction of their classes. In addition to his own academical duties, he repeatedly supplied the place of Dr John Robison, professor of natural philosophy. He taught for several months during one winter the Greek classes for the late Mr Dalzell: he more than one season taught the mathematical classes for Mr Playfair: he delivered some lectures on logic during an illness of Dr Finlayson: and, if we mistake not, he one winter lectured for some time on belles lettres for the successor of Dr Blair.

In the year 1806, he accompanied his friend the earl of Lauderdale on his mission to Paris; and he had thus an opportunity of renewing many of the literary intimacies which he had formed in France before the commencement of the revolution. On the accession of the Whig administration in 1806 a sinecure office, that of gazette-writer for Scotland, was erected for the express purpose of rewarding Mr Stewart, who enjoyed with it a salary of £600 a-year for the remainder of his life. Shortly after, he relinquished the active duties of his chair in the university, and removed to Kinneil House, a seat belonging to the duke of Hamilton, on the banks of the Frith of Forth, about twenty miles from Edinburgh, where he spent the remainder of his days in philosophical retirement. From this place were dated, in succession, the Philosophical Essays in 1810; the second volume of the Philosophy of the Human Mind, in 1813; the Preliminary Dissertation to the Encyclopædia; the continuation of the second part of the Philosophy, in 1827; and, finally, in 1828, the third volume, containing the Philosophy of the Active and Moral Powers of Man; a work which he completed only a few short weeks before his career was to close for ever.

His death occurred on the 11th of June, 1828, at Edinburgh, where he had been for a few days on a visit. He was interred in the Canongate churchyard, and a monument has been erected to his memory, on the Calton hill Edinburgh.

Mr Stewart left behind him a widow and two children, a son and daughter; the former of whom, lieutenant-colonel Matthew Stewart, has published an able pamphlet on Indian affairs.

STEWART, Gilbert, an eminent portrait painter, was born at Newport, Rhode Island, in 1757, gave early manifestations of his fondness for the pencil, and was sent to London, where he was placed under the care of Benjamin West. In the execution of portraits, the pupil soon surpassed the master. In 1784, he was established as one of the first portrait painters of London, and had, in the exhibition of that year, several full lengths of distinguished individuals. He lived elegantly and gayly; but it is believed that, notwithstanding his great success, he was obliged, by pecuniary distresses, to remove to Dublin. In 1790, he returned to his native country, from which he never again departed. He resided successively in New York, Philadelphia, and its neighbourhood, Washington, and last in Boston, continuing to paint with unabated power, although for years racked with the gout. Soon after his return to America, he painted the best portrait of Washington. The head he carefully finished, but never completed the remainder. He made several copies, all varying from the original. His death occurred at Boston, in July, 1828, and such of his works as could be collected were exhibited for the benefit of his family. Mr Stewart was gifted with uncommon colloquial powers, and his genius for portrait painting was of the highest order.

STEWART, John; commonly called *Walking Stewart*, from his pedestrian feats; an eccentric individual, who wandered, on foot, over a great part of the habitable globe. He was born in London, and, having received the rudiments of education at the Charter-house, was sent out, in 1763, as a writer to Madras. Before he had been in that situation quite two years, he wrote a letter to the directors, telling them that he "was born for nobler pursuits than to be a copier of invoices, and bills of lading to a company of grocers, haberdashers, and cheese-mongers;" and a few weeks after he took his leave of the presidency. Prosecuting his route over Hindoostan, he walked to Delhi, to Persepolis, and other parts of Persia, traversing the greater part of the Indian peninsula, and visiting Abyssinia and Nubia. Entering the Carnatic, he obtained the favour of the nabob, who made him his private secretary, and to this circumstance, he, in his latter days, owed his support, the British house of commons voting him £15,000 in liquidation of his demands upon the nabob. Quitting the service of this prince, he set out to walk to Seringapatam, where Tippoo Saib compelled him to enter his army, with a commission as captain of sepoys. After serving for sometime in this capacity, Sir James Sibbald, the commissioner for settling the terms of peace between the presidency and the sultan, procured his liberation. Stewart then started to walk to Europe, crossing the desert of Arabia, and arriving at length safely at Marseilles. Thence he proceeded in the same manner through France and Spain to his native country; and, having walked through England, Scotland, and Ireland, he crossed the Atlantic, and perambulated the United States of America. The last ten years of his life were passed in London, where he died in 1822.

STEWART, Robert, marquis of Londonderry. See *Londonderry*.

STHENIC DISEASES. See *Brown, John*.

STHENO; one of the Gorgons, q. v.

STICHOMANCY (from στίχος, a line, verse, and μαντεία, prophecy); a kind of divination, in use even among the Romans. Verses from the Sibylline Books were written on small slips of paper, which were shaken in a vessel, and one of them was drawn out, in order to discover some intimation of future events. Something similar has often been practised by Christians, putting a pin at hazard between the leaves of a closed bible. The verse which was pointed out served as an oracle. Even at the present time, this is not unfrequently done by the superstitious; and some sects even resort to it for guidance on important occasions. See *Bibliomancy*.

STICK, GOLD; an officer of superior rank in the life-guards, so called, who is in immediate attendance upon the king's person. When his majesty gives either of his regiments of life-guards to an officer, he presents him with a gold stick. The colonels of the two regiments wait alternately month and month. The one on duty is then called *gold stick in waiting*; and all orders relating to the life-guards are transmitted through him. During that month he commands the brigade, receives all reports, and communicates them to the king.—*Silver Stick*: the field officer of the life-guards when on duty is so called.

STIGMA (*Greek*); with the Greeks and Romans, a mark impressed with a hot iron on the foreheads of slaves who had run away or committed theft. The Greeks used a φ, signifying φευκτος (*fugiendus*) or φευκτικος (runaway), and the Romans an F, signifying *fur* or *fugitivus*. A black colouring substance was put in the wound. Such slaves were called *stigmatici*, *inscripti*, *literati*, στιγματιαι, στιγωνες. The Samians, who freed many slaves, and admitted them to office, were called in derision, πολυγραμματοι, *literati*. This name, however, may have had another origin, as many believe. Prisoners of war were also branded, as the slave traders now brand the negroes with the marks of their several owners. (See *Slavery*.) Recruits were also burned in the hand, generally with the name of the general. This was not considered a disgrace. In some countries criminals sentenced to the galleys are branded in a similar way to this day.

STILES, Ezra, a president of Yale college, was the son of the reverend Isaac Stiles, of North Haven, Connecticut. He graduated in that institution in 1746, with the reputation of being one of the greatest scholars it had ever produced. He then studied law, but subsequently devoted himself to theology, and settled at Newport, as pastor of the Second church, where he continued from 1755 to 1776. During this and several succeeding years, the enemy were in possession of Newport, and the inhabitants of the town were scattered. Doctor Stiles was solicited to preach in several places; he accepted the invitation from the church at Portsmouth, where he was looked up to with great admiration. In 1788, he was chosen president in Yale college, and continued to adorn that station, by his great learning, abilities, and piety, until his death, May 12, 1795, in the sixty-eighth year of his age. In person doctor Stiles was small but well proportioned. His countenance was expressive of benignity and mildness, and his manners were amiable and kind. He had a thorough knowledge of the Hebrew, Greek, Latin, and French languages; in the Samaritan, Chaldee, Syriac, and Arabic he had made considerable progress, and had bestowed some attention on the Persian and Coptic. He was well versed in most branches of mathematical knowledge. He had a thorough acquaintance with the rabbinical writings, and with those of the fathers of the Christian church. Sacred literature was his favourite study; and next to it he most delighted in astronomy. As a preacher he was impressive and eloquent in a high degree; the intrinsic excellence of his sermons was enhanced by the energy of his delivery. He published various discourses, among which was an election sermon, entitled The United States Elevated to Glory and Honour, preached May 8, 1783. He also wrote a history of the three judges of Charles I. (Whalley, Goffe, and Dixwell), and left an unfinished ecclesiastical history of New England, and more than forty volumes of manuscripts.

STILICHO; a Vandalic general, in the service of the emperor Theodosius the Great, whose niece Serena he married. Theodosius having bequeathed the empire of the East to his son Arcadius, and that of the West to his second son, Honorius, the former was left under the care of Rufinus, and the latter under the guardianship of Stilicho. (See *Western Empire.*) No sooner was Theodosius no more, than Rufinus stirred up an invasion of the Goths in order to procure the sole dominion, which Stilicho put down, and effected the destruction of his rival. After suppressing a revolt in Africa, he marched against Alaric, whom he signally defeated at Pollentia. After this, in 406, he repelled an invasion of barbarians, who penetrated into Italy under Rhadagasius, a Hun or Vandal leader, who formerly accompanied Alaric, and produced the entire destruction both of the force and its leader. Either from motives of policy or state necessity, he then entered into a treaty with Alaric, whose pretensions upon the Roman treasury for a subsidy he warmly supported. This conduct excited suspicion of his treachery on the part of Honorius, who massacred all his friends during his absence. He received intelligence of this fact at the camp of Bologna, whence he was obliged to flee to Ravenna. He took shelter in a church, from which he was inveigled by a solemn oath, that no harm was intended him, and conveyed to immediate execution, which he endured in a manner worthy his great military character. Stilicho was charged with the design of dethroning Honorius, in order to advance his son Eucherius in his place; and the memory of this distinguished captain has been treated by the ecclesiastical historians with great severity. Zosimus, however, although otherwise unfavourable to him, acquits him of the treason which was laid to his charge; and he will live in the poetry of Claudian as the most distinguished commander of his age. See Gibbon's *Decline and Fall*, ch. 29 and 30.

STILL. See *Distillation.*

STILLING. See *Jung.*

STILLINGFLEET, Edward, bishop of Worcester, was born in 1635, and received his education at St John's college, Cambridge, where he was elected, in 1653, to the first fellowship that became vacant after he had taken his bachelor's degree. His chief work, *Origines Sacræ*, or a Rational Account of Natural and Revealed Religion, is esteemed for the erudition which it displays. It was followed (1664) by a treatise On the Origin and Nature of Protestantism. Having distinguished himself by the prominent part which he took previous to the revolution, against the establishment of the Romish church in England, he was elevated to the see of Worcester by William III. Besides the writings enumerated, he was the author of an appendix to Tillotson's Rule of Faith (1676); the Unreasonableness of Separation (1683); and *Origines Britannicæ*, or Antiquities of the Churches in Britain (folio, 1685). A short time before his death, bishop Stillingfleet engaged in a controversy with Locke, respecting some part of that philosopher's writings, which he conceived had a leaning towards materialism. His death took place in 1699. His works have been collected and published entire, in six folio volumes (1710).

STILL LIFE, in painting; the representation of inanimate objects, such as dead animals (game, fishes, &c.), furniture, sometimes with fruits and flowers in addition. The interest of such representations can consist only in the form, grouping and light; hence the pictures of still life belong to the lowest species of painting. But some scenes of still life are of a higher order than others. The object of the lowest kind is merely to produce a close imitation of nature. A higher kind combines objects so as to form an interesting whole; and the highest employs the objects only to express a poetical idea, as in representing the room of a painter, a table with Christmas presents, the game of a hunter returned from his day's sport. All these may be so represented as to have a poetical character, by reminding us of the individuals with whom they are associated. The Dutch painters Van Ælst, John Fyt, Francis Sneyders, David Koning, John Weeninx, Melchior Hondekoeter, William Kalf, and Van Streeck, are distinguished for the representation of still life.

STIMULANTS are all those medicinal substances, which, applied either externally or internally, have the property of accelerating the pulse and quickening the vital actions. They are among the most valuable and important of medicines, and perhaps are more often the direct means of saving life than any others. But as they are powerful, their injurious effects, when misapplied, have been even more prejudicial to mankind than their best use has been beneficial. In fact, it may be said, that the abuse of this one class of medicines, under the names of cardiacs, cordials, alexipharmics, &c., was the cause of more numerous deaths during the dark ages of medicine, than the sword and the pestilence united. The dreadful mortality of the small-pox and of fevers during the middle ages, and even during the earlier parts of the last century, were mainly owing to the administration, by nurses and physicians, of strong cordials, and heating stimulants of all sorts, the tendency of all of which was to increase the violence of the disease, although they were intended merely to expel the noxious and poisonous humours from the system. But, happily for mankind, a more cautious use of these articles have been introduced, and they are now the constant means of preserving, when properly applied, the life which they were formerly so quick to destroy. Stimulants are either simple and direct in their operation, as the external application of heat in all forms, dry and moist, by friction, &c., the application to the stomach of hot liquors, spices, camphor, hartshorn, warm and aromatic gums and oils, as mint, cardamom, cajeput, ginger, assafœtida, red pepper, spirits of turpentine, &c.; or they act first as stimulants, but produce afterwards effects of a different character, as is the case with all which are termed *diffusible* stimulants, as wine, brandy and spirits of all sorts, opium, &c., all of which are highly stimulant at first, and in small quantity, but afterwards, and when taken in larger doses, produce exhaustion, debility, sleep and death. The first class are, upon the whole, the most safe, and should be always used, in preference to the last, when they can be had, in all cases of suspended animation, from cold, drowning, suffocation, &c.; while the others are more valuable for their secondary and remote effects, by means of which they ease pain, relieve spasm, &c.; and for these purposes they should be used freely, as they can do no hurt, while the violence of the disease subsists. But they should never be resorted to, unless pain is urgent or debility become so great as to endanger life.

STINK-POT; an earthen jar, charged with powder, grenades, and other materials of an offensive and suffocating smell. It is sometimes used by privateers, to annoy an enemy whom they design to board.

STIPPLING. See *Engraving*.

STIRIA (in German, *Steiermark*); a province of the Austrian empire, which takes its name (see *Marches*) from the county of Steier, in the Land above the Ens. The eastern part was anciently a portion of Pannonia, the western of Noricum, which were conquered by the Romans at the close of the last century before the Christian era. The Avars afterwards occupied Upper Stiria, and the Veneti Lower Stiria, whence the latter was called the *Wendish mark*. Charlemagne set markgraves over it; and, as the counts of Steier were among the number, it hence received the name of *Steiermark*. It is bounded north by the archduchy of Austria, east by Hungary, south by Carniola and Carinthia, and west by Carinthia and Salzburg. Population, 836,128; square miles, 8480. Upper Stiria lies to the north and is mountainous, consisting, in a great measure, of a continuation of a branch of the Alps. Lower Stiria comprises the southern part. A number of lateral branches of the Alps extend into Lower Stiria, but become gradually lower as they remove from the main chain, till they present nothing but small elevations. There are, however, but few extensive plains. The rivers are the Drave, Save, Muhr, and Ens. The climate in the elevated parts is cold, but the air is pure and elastic; the soil, except on the high mountains, very fertile, producing wheat, oats, rye, potatoes, and in warmer situations, wheat. Great attention is paid to raising cattle, and poultry is abundant. Agriculture is in a backward state. Stiria abounds in mineral productions. The iron mines are the most important, and yield annually from 16,000 to 20,000 tons. Salt and coal are abundant. Gold, silver, and copper hardly defray the expense of working: lead is more common. Cobalt, arsenic, and molybdena are found. The manufactures are chiefly derived from the mines. The exports consist of metals, corn, flax, wine, clover-seed, and cattle. The Stirians have the hospitality, frankness, and simple habits of an agricultural people; but they are imperfectly educated, though parish schools have been established in the principal villages. The majority are Catholics, though the Protestants enjoy a full, and the Jews a limited, toleration. The chief town is Grätz. —See Basil Hall's "Schloss Hansfield, or a Winter in Lower Stiria."

STIRLING: an ancient royal burgh of Scotland, the capital of Stirlingshire, is situated on the south bank of the river Forth, at the distance of thirty-five miles N. W. of Edinburgh, and twenty-eight N. E. of Glasgow. In external appearance it resembles the old town of Edinburgh, each being built on the ridge and sides of a hill, which rises gradually from the east, and presents an abrupt crag towards the west; and each having a principal street on the surface of the ridge, the upper end of which terminates with a castle. The castle of Stirling, however, stands on a higher natural battlement than that of Edinburgh; the one being about 350 feet above the level of the sea, the other not quite 300.

Stirling has been called the Windsor of Scotland and it has some pretensions to that appellation. The view from the castle is of vast extent, and comprehends the richest variety both of the beautiful and the grand in natural scenery. Towards the west the prospect is bounded by the solitary Benlomond, rising at the distance of about thirty miles, to the height of above 3000 feet. The intervening space is a level valley, through which the Forth is seen stealing its way with a thousand meanderings. Round the northern horizon sweeps the almost continuous chain of the Grampians. To the south lie the green hills of Campsie; turning round from which towards the east the eye rests on a plain of rich and cultivated beauty, with the sister towers of the capital cresting the distance, and between, the broad and fertile plains of Carron on the one hand, and on the other, "the mazy Forth unravelled" in a succession of beautiful windings, till it spreads out from a slender stream into a great arm of the sea.

Some idea of the singular manner in which the river lingers over this part of its course, may be formed from the fact that it travels over about twenty four miles in making its way through a space not more than six miles in length. The innumerable green peninsulas, of every variety of shape and dimension, which it forms in its sportive progress, present a picture which certainly has not often been surpassed in bright and animated beauty.

"Grey Stirling with her towers and town," is unquestionably a place of very high antiquity. The oldest existing charter of the burgh is dated in 1120; but it bears to be a confirmation of former grants, and there can be no doubt that the fort at least was of importance a considerable time before this. The first mention which historians have made of it is in the ninth century, about the middle of which it is recorded to have been taken and thrown down by Kenneth II. the king of the Highlands of Scotland, when he overcame the Picts, whose principal fortress it was, and that which guarded the most exposed extremity of their territory. The whole of the south of Scotland as far as Stirling, however, appears soon after this to have fallen into the possession of the two chiefs, Osbright, or Osbert, and Ella, who, under the weak sway of the English king, Ethelred I., had seized upon the sovereignty of Northumberland; and they rebuilt the castle as a protection to their new conquests. In the next century we find it again in the hands of the Scots. It was afterwards repeatedly attacked and taken both by the English, and by the several factions whose contentions continued to distract Scotland with little intermission, during nearly all the time it remained an independent kingdom.

Stirling castle first became a favourite residence about the reign of James I., whose son James II. was born in it, and also kept for some time during his minority. James III. was extremely partial to Stirling castle; parliaments were called to sit in it; and he increased the buildings by a palace, part of which is supposed to be still extant, and by founding a chapel-royal within its walls. James IV. gave Stirling and Edinburgh castles to his queen, Margaret of England, (daughter of Henry VII.) as her jointure houses. James IV. frequently resided here during Lent, in attendance upon the neighbouring church of the Franciscans. James V., who was born and crowned in Stirling castle, further adorned it by the erection of the present palace. It was also occupied by the widow of the prince, Mary of Guise, queen regent, who erected the battery towards the east, called the French battery, from having been built by her French auxiliaries. While James V. resided in the castle of Stirling, he frequently went forth in disguise, and his adventures on these occasions have furnished a scheme for many amusing anecdotes. Mary, daughter of this prince, here celebrated the baptism of her son, afterwards James VI.; on which occasion there was a prodigious display of courtly hospitality. James, whose baptism took place in December, 1566, was removed in February 1566—7 to Edinburgh, but was soon after sent back to Stirling, where he spent the years of his childhood till he was thirteen years of age. The apartments which he occupied, with his preceptor, George Buchanan, and where that learned man, in 1577—8, wrote his History of Scotland, are still shown in the palace, though now degraded into the condition of a joiner's workshop. James did not make Stirling the jointure-house of his queen; that honour was reserved for Dunfermline. Here, however, he baptized his eldest son, prince Henry, for which purpose he built a new chapel on the site of the old one. The fortress continued afterwards in considerable strength. In 1651, when employed by the Scottish estates, in the honourable service of keeping the national registers, it was besieged and taken by general Monk. In 1681, James, duke of York, afterwards James II. or VII., visited Stirling, with his family, including the princess, afterwards queen Anne. A scheme was formed in 1689, by viscount Dundee, (Claverhouse) and other friends of this monarch, for rescuing the castle for his service from the revolutionists, but in vain. In the reign of queen Anne, its fortifications were considerably extended, and it was declared to be one of the four fortresses in Scotland which were to be ever after kept in repair, in terms of the treaty of union with England. Since that period, it has experienced little change in external aspect, except its being gradually rendered more and more a barrack, for the accommodation of modern soldiers. It formed an excellent *point d' appui* for the duke of Argyle and the government forces in 1715, when that nobleman encamped his little army in the park, and resolutely defended the passage of the Forth against the insurgent forces under the earl of Mar. In 1745, prince Charles led his highland army across the Forth by the fords of Frew, about six miles above Stirling; but he made no attempt on the castle till the succeeding year, when, in returning from England, he laid siege to it in regular form, but was obliged to retire to the highlands, without having made any impression upon it. Population of the burgh of Stirling in 1831, 8556.

STIRLINGSHIRE; a central county of Scotland, is bounded on the north by Perthshire and Clackmannanshire; on the east by Linlithgowshire, on the south by Lanarkshire; and on the south-west and west by Dumbartonshire. It extends about thirty-six miles in length, and from twelve to seventeen in breadth. Stirlingshire is partly highland, and partly lowland. The highland district is on the western quarter, adjacent to Loch Lomond. East from this, the land becomes flattish, or gently inclining towards the Forth and the Endrick. Next, on the east, or in the centre of the county, within the parishes of Killearn, Fintry, Gargunnock, Campsie, Kilsyth, and the western part of St Ninians, the ground again rises into a series of hills. The Lennox hills, Campsie fells, and Gargunnock hills, are the local appellations of these eminences, which are from thirteen to fifteen hundred feet in height. From Ben Carron, the highest of the hills in Kilsyth parish, there is obtained one of the finest views in Scotland, and which has been computed to embrace an extent of 12,000 square miles. Many of these hills in the central and especially in the southern division, partake more of the lowland than the highland appearance, as their summits, and many parts of their sides, are covered by green sward, which affords excellent pasturage for sheep. The eastern division of the county consists of beautiful carse land, and in many places quite flat, and inclined plains gradually rising towards the south, from the rich vale of the Forth. In this quarter, the country has undergone great improvements, and now exhibits every where the pleasing spectacle of fertile, drained meadows, fields in the highest state of tillage, with plantations, pleasure grounds, gardens, and orchards, all in exuberant vegetation. Almost every variety of soil to be met with in Scotland, occurs in Stirlingshire; but the most common and the most fertile in the county, is the alluvial or carse land, which occupies an extent of about 40,000 acres on the banks of the Forth. In this soil there are beds of shells, clay, marle, and moss. Small patches of rich loam occur in many parts of the county. The soil on the banks of the rivers, in the western and central districts, is chiefly of a light and gravelly description. The agriculture of the county is subject to considerable variation, owing to the great variety of soil and situation. The carse-lands, which are arable, are portioned out into small farms of from fifteen to 100 acres, which sometimes afford a rent of £4 an acre. But the hill farms frequently extend to nearly 4000 acres. Large crops of wheat, barley, beans, peas, turnips, potatoes, &c., are raised; the use of artificial grasses has also been very generally adopted in this country. The extensive ranges of moorland, in the upland districts, are devoted to the feeding of sheep.

The Forth is the principal river of Stirlingshire. It has its origin in a spring near the summit of Benlomond, and after running eight or ten miles under the name of the water of Duchray, and flowing through part of Perthshire, where it is called Avondhu, or the Black River, it again enters Stirlingshire, under the name of the Forth, where it receives the Teith, Bannockburn, Ardoch, and Allan. The Carron, the next river in size to the Forth, rises in the central district, and after flowing on in an easterly direction, joins the Forth at Grangemouth. The smaller rivers are the Bannockburn, the Avon, the Endrick, the Blane, and the Kelvin.

Stirlingshire abounds with iron-stone, coal, freestone, and limestone. The manufactures of the county are various. At Stirling, and in the town and parish of St Ninians, there are manufactories of carpets, coarse woollens of divers kinds, tartans, and cottons, while there are several large establishments in different places for cotton, paper, copperas, alum, Prussian blue, soda, &c. There are many large distilleries in various parts of the county. The grand staple manufacture of Stirlingshire is iron goods, cast and malleable, at Carron, on the banks of the river of that name. The manufacture of nails for carpenter work is likewise carried on in the wayside villages to a very considerable extent. By these various means, this central county of Scotland has risen greatly in wealth, civilization, and amount of population, and its future prospects are equally cheering. Stirlingshire comprises twenty-two parishes, besides portions of other four. The county contains only one royal burgh, Stirling, and the populous and thriving town of Falkirk; likewise the villages of St Ninians, Airth, Balfron, Bannockburn, Camelon, Carron, Denny, Drymen, Fintry, Grangemouth, Gargunnock, Killearn, Kilsyth, Kippen, Larbert, Lennoxtoun of Campsie, Laurieston, Polmont, Strathblane, &c. Population of the county in 1831, 72,621.

STIRLING, LORD. See *Alexander, William.*

STIRRUP. The ancients were not acquainted with the use of this convenient article of equestrian costume, the emperor Mauritius, who flourished towards the end of the sixth century, being the first writer who makes mention of it, in his Treatise on the Military Art. The Roman youth were accustomed to leap upon their horses sword or lance in hand. A jasper, explained by Winckelmann; a *basso-relievo*, engraved by Roccheggiani; and the painting of a Greek vase, published in Millin's *Recueil de Monumens*, all exhibit warriors mounting on horseback by the help of a cramp-iron attached to the pike or lance. Distinguished persons and old men had servants to place them on their horses, and conquered sovereigns were often compelled to perform this office for their vanquishers. Caius Gracchus caused to be placed at certain distances along the high roads, after the example of the Greeks, large stones to assist the horsemen in mounting.

STOA. See *Stoics.*

STOAT. See *Ermine.*

STOBÆUS, JOHN, the name of a Greek writer, who, about the middle of the fifth century, was the author of a variety of miscellaneous works, most of which have perished; but his collection of excerpts from those of various philosophers and poets, has come down to posterity, and is important, from the fragments of lost authors which it contains. It consists of four books, of which the third and fourth form a separate work; and its extracts are important contributions to the history of philosophy. The best edition is that of Heeren (Göttingen, 1792—1801, 4 vols.)

STOCK EXCHANGE; originally, the building in London, where the stock brokers assemble to transact their business. It was erected in 1804, in consequence of the inconvenience to which they were subjected, and the general interruption of public business, occasioned by the stock-jobbers, who intermingled with them when they transacted business in the bank rotunda. No person is allowed to act here but regular stock brokers, who are balloted for annually. The name is also applied in general to the place where the same business is transacted in other cities. The great stock exchanges of Europe are those of Amsterdam, London, Paris, and Frankfort on the Maine, which decide the price of stocks in all the rest of the world. Those of Petersburg, Berlin, and Vienna are of much less importance. We have given an account of the stocks of different countries in the article *Public Stocks;* we shall here give a view of the manner of creating, purchasing, and transferring stock, as practised in London. New loans are paid at stated periods, by instalments of 10 or 15 per cent., and the terms on which they are made generally occasion an increase on different kinds of stock, to the amount of three per cent. and upwards (according to the emergency and state of the money market) more than the sum borrowed. Thus, for every hundred pounds capital, new stock is created to the amount of one hundred and three pounds. The difference is called the *bonus*, and the aggregate of the additional stock of different kinds is termed *omnium.* If these be disposed of separately, before all the instalments are paid, the different articles are called *scrip*, which is an abbreviation of *subscription.* The value of the stocks is perpetually fluctuating, the variations being occasioned by unfounded as well as real causes. Any occurrence by which the security of the state is either hazarded or strengthened, though one may be as imaginary as the other, has an immediate effect upon the price, which will advance or fall as the news may be considered good or otherwise. The gaining of a victory, the signing of an armistice, and the conclusion of a peace, have each a direct influence on the rise of the stocks; whilst, on the other hand, the loss of a battle, the death of a sovereign, the commencement and protraction of war, are equally certain to lower the funds; even the mere report of a momentous event will frequently lead to a considerable alteration of price. The quantity of stock in the market will also either depreciate or raise the value, as purchasers may be more or less numerous. The manner of buying stock is, to give a specific number of pounds for a nominal hundred pounds. Thus, if the purchase be made in the three per cents., and the current price be eighty pounds, that sum is paid for one hundred pounds stock, which yields a dividend of three pounds per annum. Persons conversant in these things will sometimes obtain a considerable advantage by transferring stock from one branch of the funds to another, the variations in the value of the different stocks not being always adjusted to their proper level. Every possible degree of facility, consistent with prudence, is given to the purchase and sale of stocks; yet the intervention of a stock broker is generally thought requisite, as the identity of the persons making the transfer must be vouched for, before the witnessing clerk will allow his signature to be made in the bank books. All transfers of stock are made on the appointed transfer days; and no stock can be transferred twice on the same day. The space between the shutting and opening the books of any stock is usually about six weeks. See *Stock-Jobbing.*

STOCK-FISH. See *Cod.*

STOCK-JOBBING. The practice to which the term *stock-jobbing* is more particularly applicable, is that which is carried on amongst persons who possess but little or no property in any of the funds, yet who contract for the sale or transfer of stock at some future period, the latter part of the day, or the next *settling day*, at a price agreed on at the time. Such bargains are called *time-bargains*, and are contrary to law; and this practice is *gambling*, in every sense of the word. The business of *jobbing* is carried on to an amazing extent, and is of this character:—A. agrees to sell B. £10,000 of bank stock, to be transferred in twenty days, for £12,000. A., in fact, does not possess any such property; yet if the price of bank stock on the day appointed for the transfer should be only £118 per cent., he may then purchase as much as will enable him to fulfil his bargain for £11,800; and thus he would gain £200 by the transaction. Should the price of bank stock advance to 125 per cent., he will then lose £500 by completing his agreement. As neither A. nor B., however, may have the means to purchase stock to the extent agreed on, the business is commonly arranged by the payment of the difference—the profit or the loss—between the current price of the stock on the day appointed and the price bargained for. In the language of the *alley*, as it is called in London (all dealings in the stocks having been formerly transacted in 'Change alley), the buyer in these contracts is denominated a *bull*, and the seller a *bear*. As neither party can be compelled to complete these bargains (they being illegal), their own sense of "honour," the disgrace, and the loss of future credit, that attend a breach of contract, are the sole principles on which this singular business is regulated. When a person refuses, or has not the ability to pay his loss, he is termed a *lame duck;* but this opprobrious epithet is not bestowed on those whose failure is owing to insufficient means, provided they make the same surrender of their property voluntarily, as the law would have compelled had the transaction fallen within its cognizance. This illegal practice is nothing more than a wager as to what will be the price of stocks at a fixed period; but the facility which it affords to extravagant and unprincipled speculation, and the mischief and ruin which have frequently followed it, determined the legislature to lay a penalty of £500 on every person making such *time bargains;* and the like sum on all brokers, agents, and scriveners employed in transacting or writing the said contracts. By the same statute also (7 Geo. II., ch. 8), a similar penalty is imposed upon all persons contracting for the sale of stock, of which they are not possessed at the time of such bargain; and £100 on every broker or agent employed in procuring the said bargain. See *Stock Exchange.*

STOCKHOLM; the capital of Sweden, and one of the handsomest cities in the north of Europe, is situated at the junction of the lake Mälar with an inlet of the Baltic; lon. 18° 4′ E.; lat. 59° 21′ N.; population in 1826, 79,526. Stockholm is generally described as standing on seven islands, but is chiefly built on three, of which the small one in the centre constituted the original city, and is still the most busy part of the town, and the residence of the principal merchants. The Norrmalm and Södermalm, the two principal suburbs, occupy several islands. The form of the city is an oblong, and its situation is extremely picturesque, as well from the mixture of land and water as from the unevenness of the ground on which it is built. The view from the higher grounds embraces edifices of all sorts, and vessels at anchor, or sailing across the channels, and is terminated by mountains, with a variety of romantic scenery. Constantinople is perhaps the only city of Europe which surpasses it in situation. There are thirteen stone bridges, and several of wood. The houses in the central part are of stone or brick, covered with plaster, of four or five stories, with their foundations on piles, but in the suburbs of only one or two stories, and partly of wood. Among the public buildings are the royal palace, the palace or house for the nobility of the diet, arsenal, bank, royal stables, warehouse for iron, hospitals, and twenty-four churches, eighteen of which are Lutheran. The royal palace is a large quadrangular edifice, the lower part of the walls of polished granite, the upper part of brick, covered with stucco, and is accounted second to no palace in Europe, except that at Versailles. The literary associations are numerous and respectable; the principal are the academy of sciences, founded in 1739, having a museum, library, an observatory, and 160 members; the Swedish academy, founded in 1786, for improving the Swedish language, having eighteen members; the academy of fine arts, history and antiquities; the military academy, academy for painting and sculpture, and for music, and the medical college. The royal library contains about 50,000 volumes, and there are several important private collections. Stockholm is the mercantile emporium of the eastern part of Sweden. The harbour is of great depth, and so capacious that 1000 vessels may lie here in safety; and the largest come close up to the quays. The number of vessels that enter annually is, on an average, about 1000. The chief exports are iron and steel, also copper, pitch, tar, and timber; imports, colonial produce, wine, fruit, salt, and British manufactures. The manufactures are various, but not on a large scale. See *Sweden.*

STOCKINGS are made of only one thread, entwined so as to form a species of tissue, extremely elastic, and readily adapting itself to the part it is employed to cover. The tissue cannot be called cloth, for it has neither warp nor woof, but approaches it closely, and for the purposes to which it is applied, is much superior. It is well known that the ancient Romans had no particular covering for the legs (see *Breeches*); but during the middle ages, hose, or leggins, made of cloth, came into use; and, at a later period, the art of knitting stockings was invented. Very different accounts are given of the time and country of this important invention, some attributing it to the Scots, and others deriving it from Spain. Woven stockings are manufactured by the machine called *stocking frame*, which is exceedingly ingenious, but too complex to be described without plates. It was invented by William Lee, of Nottinghamshire, in 1589. He met with little encouragement in his attempts to set up an establishment in England, but was invited into France by Henry IV., and received with great favour. Henry's assassination soon after interrupted his prospects, and he died in Paris in great poverty. A knowledge of his machine was carried back to England by some of his workmen, who established themselves in Nottinghamshire, which has since continued to be the principal seat of the manufacture. For near 200 years, few improvements were made on Lee's invention, and two men were usually employed on one frame; but it has recently been much improved, and adapted also to the manufacture of ribbed stockings. See Beckmann's *History of Inventions*, iv, article *Knitting Netts* and *Stockings*.

STOCKPORT; a large market and borough town of England, in Cheshire, situated on the river Mersey, principally on the top and sides of a hill, 176 miles N. W. by N. from London. It is a place of great antiquity, the Romans having had a camp here, and the Saxons a fortress. In the civil war it was garrisoned for the parliament and taken by Prince Rupert, but again fell into the hands of the parliamentarians, who held it until the termination of the war. In 1745 it was twice visited by the troops under the Pretender. The trade and manufactures of Stockport, that of cotton in particular, have greatly increased of late, and been considerably facilitated by the canal communication with the rivers Mersey, Dee, Ribble, Trent, Severn, &c. The silk trade, which was once extensively carried on here, has declined. The parish church of St Mary is an ancient structure of the 14th century, but which has been frequently repaired, and portions rebuilt. St Peter's church is a neat brick building, erected about the year 1767, at the expence of William Wright, Esq. St Thomas' is a modern edifice. Here are also chapels belonging to the Independent, Primitive, Wesleyan, and New Connexion Methodists; the Society of Friends, Unitarians, and Roman Catholics. A free grammar-school, rebuilt by the Goldsmith's Company, was founded and endowed by Sir Edmund Shaw, of London, in 1482. In a school established in 1805, for all denominations, 4000 children are instructed, and upwards of 1500 are received in branches of the same institution. In 1826, a national school was founded, in which between two and three thousand boys and girls are educated; and the established church and dissenting bodies have Sunday schools. The poor have likewise the advantage of six almshouses, a dispensary, and other benevolent institutions. Within the last twenty years, the town has been greatly improved; it is now well paved, and lighted with gas, and has a neat theatre, and excellent library and news-room. Population of town in 1831, 25,469; of town and parish, 66,610. in 1841, 84,282.

STOCKS; a wooden machine used to put the legs of offenders in, for the restraining of disorderly persons, or as a punishment for certain offences.

STOCKS, PUBLIC. See *Public Stocks*.

STODDART, SOLOMON, an American divine, was born at Boston, in 1643, and graduated at Harvard college in 1662, of which he was subsequently made a fellow. Intense application having impaired his health, he went to Barbadoes as chaplain to governor Serle, and preached to the dissenters in that island for nearly two years. On his return, he was invited to take charge of the church of Northampton, and was ordained September 11, 1672. In this place he continued until his death, February 11, 1729, in the eighty-sixth year of his age. Mr Stoddard is considered one of the greatest divines of New England. He waged a polemical contest with doctor Increase Mather respecting the Lord's supper, maintaining that the sacrament was a converting ordinance, and that all baptized persons, not scandalous in life, may lawfully approach the table, though they know themselves to be unconverted, or destitute of true religion; and most of the churches of Connecticut were induced by his arguments to coincide in his sentiments. His diligence was so unremitting that he left a considerable number of sermons which he had never preached; and so fine was his hand-writing, that one hundred and fifty of his discourses are contained in a small duodecimo manuscript volume, which may easily be carried in the pocket. He published various sermons and treatises.

STOICHIOMETRY (from στοιχεῖον, element, original matter). The article *Affinity, Chemical*, treats of the general principles of chemical combinations and solutions. Neutrality is that state of solution of two substances in which each seems to have lost its peculiar characteristics. That branch of chemical science which treats of the proportions which the substances must have, when they enter the state of neutrality, has been called by modern chemists *stoichiometry*.

STOICS; an ancient philosophical sect, founded by Zeno, which received its name from the στοα (*porch* or *portico*), called *Pœcile* in Athens, where Zeno taught his doctrines (about B. C. 300). Zeno, a contemporary of Epicurus, after having studied the systems of the Socratic, Cynic and Academic schools, opposed to scepticism views resting on rigorous moral principles. Philosophy is, according to him, the way to wisdom; wisdom itself is the knowledge of human and divine things; and virtue is the application of wisdom to life. The chief heads of his doctrine—logic, physics and morals—were connected into a systematic whole. In logic, which he defined the science of distinguishing truth and falsehood, he made experience the basis of all knowledge; ideas, or conceptions, which, in all respects, resemble their objects, he called true, and the power of judging according to principles, the mark of a sound reason. In his physics, he refers to nature itself for the highest standard of human duties, and derives the moral precepts from the laws of the universe. He assumes two uncreated and eternal, but material principles of all things—the passive matter, and the active intelligence, or God, which resides in matter, and animates it. The Deity is the original intelligence, and of an ethereal, fiery nature: he made the world, as an organic whole, out of matter and form, by the separation of the elements; and he also rules the world but is limited in his operations by unchangeable fate or the necessary laws of nature. The universe, according to Zeno, is penetrated by the divine intelligence as by a soul, and is therefore living and rational, but destined to be destroyed by fire. He considers the heavenly bodies, and the powers of nature, of a divine character, and therefore admits the worship of several gods, and teaches that their connexion with men may be beneficial to the latter. The human soul he considers as produced by the union of the creative fire with air, and endowed with eight faculties—the five senses, the powers of generation, speech, and reason: the latter, as the active principle, governs the whole soul. The ethics of the stoics treats the will of God (which also animates the soul of man), or nature, as the source of the moral law, which binds man to aim at divine perfection, since this only can lead to a virtuous life, harmonizing with God and nature, which is the only true happiness. Their practical maxim is, Follow nature, live according to nature, or, which amounts to the same thing, Live in accordance with the laws of consistent reason. They considered virtue the highest good, and vice the only evil; every thing else is indifferent, or only relatively agreeable or disagreeable. They call human actions honest, when they have a reasonable foundation in the nature of the agent; perfectly proper, and therefore obligatory, when good in themselves; intermediate or lawful, in so far as, indifferent in themselves, they are expedient or allowable only in certain relations, but criminal, when they are inconsistent with the reason of the agent. Virtue they accordingly explain as the true harmony of man with himself, independent of reward or punishment, to be attained by correct moral judgment, and the mastery over the passions and affections: this virtue presupposes the highest inward tranquillity and elevation (apathy) above the pleasures and pains of sense; it makes the wise man not destitute of feeling, but invulnerable, and gives him a dominion over his body which permits even suicide. Virtue, therefore, is represented chiefly under the character of self-denial. Zeno, and his celebrated disciple and successor, Cleanthus, both put themselves to death at an advanced age, the latter by starvation. Cleanthus, originally a pugilist, gave to the Stoic philosophy its distribution into dialectics, rhetoric, ethics, politics, physics and theology. He enlarged theology by his proof of the existence of God, and expressed his reverence of one God in his admirable Hymn, yet extant, *Cleanthi Hymnus* (ed. Sturz, 1785). Chrysippus of Soli (died 208 or 212 B. C.), the successor of Cleanthus, carried logic and dialectics to greater perfection, and in physics, proved that the influence of fate, or the necessary relation of things, neither destroyed the operation of divine providence nor the free agency of man. In morals, he distinguished, like his predecessors, a natural and a positive law, and derived the latter from the mutual relations of men, as fellow-creatures of the same nature. His successors were Zeno, Antipater (both of Tarsus), Panætius of Rhodes, the pupil of Antipater, and Posidonius of Apamea, in Syria, the disciple of Panætius. Chrysippus, through his writings, also exerted a most important influence upon the Roman philosophers, among whom Seneca, Epictetus, and Marcus Aurelius (see *Antonius*), were Stoics. They employed themselves principally on practical questions; and their moral doctrines have so many points of resemblance to those of Christianity, as to have given rise to the opinion, that they were borrowed from the latter.—See Tiedemann's *System der stoischen Philosophie* (Leipsic, 1776).

STOLA; a garment worn by the Roman women in later times, they having originally worn the *toga* only, like the men. The *stola* was a long tunic with sleeves, reaching to the feet, worn both by the rich and the poor, with this difference only, that the *stola* of the latter had but a single gold stripe, whilst that of the former had stripes of gold and purple, and at the bottom a broad border or fringe, called *instita*. Public women, and those who had been found guilty of adultery, were forbidden to wear the *stola;* hence they were called *togatæ*. By *stola*, therefore, a chaste woman, as well as a woman of condition, was designated. *Instita* was used in the same way.—The *stola*, which forms a part of the sacerdotal dress of Catholic priests, is a long, broad, white band, of silk or silver stuff, lined with stiff linen, worn by the deacons over the left shoulder, and reaching to the right hip, like the riband of an order; but the priests wear it over both shoulders. and hanging down across the breast. It is marked with three crosses, and not unfrequently has little bells at the end. Prelates wear it ornamented with pearls and embroidery. The *stola* is necessary for reading the mass; hence *jura stolæ*, or the dues which are paid for baptisms, marriages, interments, confirmation. confession, and similar religious services performed by the priest. This name has been retained by the German Protestants, although they no longer use the *stola*. The teachers of the ancient church were supported by the voluntary gifts of the faithful (oblations); and it was long left optional with laymen whether they would give any thing to the priest on such occasions, or not. What was given, was paid over, as late as the sixth century, to the bishop, who allowed a part to the parochial clergy. After that time, every pastor acquired the right to retain what he received in this way from his parishioners; but the councils, down to the tenth century, insisted that the priests should not ask any thing for the above services, but merely receive what was voluntarily given. In the sixteenth century, this permission became a right (*jus*), confirmed by the ecclesiastical authorities; hence *jura stolæ*.

STOLBERG; an ancient German house, which was formerly divided into the two lines of the Hartz and the Rhine. The latter becoming extinct, its possessions fell to the former, which, subsequently to 1638, was divided into the elder line, in the two branches of Ilsenburg (extinct in 1710) and Gedern, and the younger line, in the two branches of Stolberg-Stolberg and Stolberg-Rossla. To the Gedern branch belonged the Stolberg-Wernigerode family, that of Stolberg-Gedern (see *Albany*), now extinct, and that of Stolberg-Schwarza, also extinct. In the time of the empire, the counts of Stolberg belonged to the Wetteravian college. Their possessions have been mediatized, and are now under Prussian or Hanoverian sovereignty.

STOLE, GROOM OF THE; the eldest gentleman of his majesty's bed chamber, whose office it is to present and put on his majesty's shirt, every morning, and to put the room in order. See *Stola*.

STOMACH (*stomachus; ventriculus; gaster*); a membraneous bag, situated in the epigastric region, which receives the food from the œsophagus. Its figure is somewhat oblong and round. It is largest on the left side, and gradually diminishes towards its lower orifice, where it is the least. Its superior orifice, where the œsophagus terminates, is called the *cardia;* the inferior orifice, where the intestine begins, the *pylorus*. The anterior surface is turned towards the abdominal muscles, and the posterior opposite the lumbar vertebræ. It has two curvatures; the first is called the great curvature of the stomach, and extends downwards from one orifice to the other, having the omentum adhering to it; the second is the small curvature, which is also between both orifices, but superiorly and posteriorly. The stomach, like the intestinal canal, is composed of three coats, or membranes:—1. The *outermost*, which is very firm, and forms the peritonæum; 2. the *muscular*, which is very thick, and composed of various muscular fibres; and, 3. the *innermost* or *villous coat*, which is covered with exhaling and inhaling vessels, and mucus. These coats are connected together by cellular membrane. The glands of the stomach which separate the mucus are situated between the villous and muscular coat, in the cellular structure. The nerves of the stomach are very numerous, and come from the eighth pair and intercostal nerves. The lymphatic vessels are distributed throughout the whole substance, and proceed immediately to the thoracic duct. The use of the stomach is to excite hunger, and partly thirst, to receive the food from the œsophagus, and to retain it, till, by the motion of the stomach, the admixture of various fluids, and many other changes, it is rendered fit to pass the right orifice of the stomach and afford chyle to the intestines. See *Gastric Juice*, *Digestion*, *Dyspepsia*.

STOMACH-PUMP. A small pump—in this application called the *stomach-pump*—has lately been introduced into practice, for removing poisons from the stomach in cases where the action of vomiting cannot be excited. It has already saved many lives. It resembles the common small syringe, except that there are two apertures near the end, instead of one, which, owing to valves in them, opening different ways, become what are called a *sucking* and a *forcing* passage. When the object is to extract from the stomach, the pump is worked while its sucking orifice is in connexion with an elastic tube passed into the stomach; and the discharged matter escapes by the forcing orifice. When it is desired, on the contrary, to throw cleansing water or other liquid into the stomach, the connexion of the apertures and the tubes is reversed. As a pump may not be always procurable when the occasion for it arises, the profession should be aware, that a simple tube will, in many cases, answer the purpose as well, if not better. If the tube be introduced, and the body of the patient be so placed that the tube forms a downward channel from the stomach, all fluid matter will escape from the stomach by it, as water escapes from a funnel by its pipe; and if the outer end of the tube be immersed in liquid, there will be, during the discharge, a siphon action of considerable force. On changing the posture of the body, water may be poured in through the same tube to wash the stomach. Such a tube, made long enough, might, if desired, be rendered a complete bent siphon, the necessary preliminary suction being made by a syringe, or by the mouth through an intervening vessel.

STOMACH-STAGGERS; a dangerous disease with horses, which is even yet but little understood. In the stable, the horse dozes, and rests his head in the manger; he then wakes up, and falls to eating, which he continues to do until the distention of the stomach becomes enormous; for the peculiarity of the complaint consists in the total stoppage of digestion, and the uneasy feeling of distention, consequent to such indigestion, appears to deceive the horse, whose morbid excitement induces him to continue eating. This he does until the distention prevents the return of the blood from the head; and the animal dies from apoplexy, or his stomach bursts. When recovery has taken place, it has been only in very mild cases.

STONE, or CALCULUS; every hard concretion, not bony, formed in the body of animals. The article *Calculus* treats of the variety and chemical composition of these concretions. We shall add here a few words respecting their probable origin, and the cure of this disease in man. These concretions originate immediately in a disturbance of the secretions; but this disturbance may, perhaps, in most cases, be caused by a disordered condition of the juices, particularly of the blood, and a want of due assimilation. This may be supposed, because, in the complaints of the gravel and the gout, which frequently interchange, the digestion almost always suffers, and acid is found in the primæ viæ; also, because cattle often have biliary calculi in the spring, which disappear after they have fed for a time on green fodder. Calculi form themselves in those secreted fluids which contain many ingredients, and which have an inclination to assume a solid form, especially in such as are collected in particular receptacles (the gall bladder and urinary bladder); and they have even been found in the salivary ducts. They consist of a nucleus and several surrounding coats similar or various in their nature. Their component parts vary according to the fluid in which they have been formed. They obstruct the passages, and prevent the discharge of the secreted fluid; they irritate the vessels in which they are contained, and thereby cause convulsions, pains, inflammations and suppurations; they also affect, indirectly, other organs, e. g. the stomach, producing sickness and vomiting; the stones in the bladder occasion itching in the glands of the genitals, pains in the loins, testicles, &c. The most common calculi are, *A.* biliary calculi, often found in great numbers in the bile, sometimes in the liver, from the size of a pea to that of a hazel-nut. They are dark, brown, black, and usually polished on several parts of the surface, and generally occasion disease only when they move, and are very jagged. But in such cases violent pains exist, which extend from the right side to the centre of the body. They also sometimes cause periodical and obstinate jaundice. The convulsions and pains which they occasion frequently require the application of particular medicines to relieve the immediate suffering, besides those directed against the disease itself; the patient is often relieved from them by vomiting or by stool. *B.* Urinary calculi are sometimes a kind of coarse sand, called *gravel*, which sinks immediately to the bottom of the vessel in which the urine is left. Sometimes they are real stones, of the size of a pea, of a walnut, or even of the fist. They are found either about the kidneys, and then cause pains, inflammations, and suppuration, or in the pelvis of the kidneys. In this case, from time to time, single stones pass into the bladder, with violent pains extending from the region of the kidneys downward or backward, and are carried off with the urine; or they originate in the bladder itself, where they often acquire a very considerable size. They cause pains in the region of the bladder and in the perinæum, and great suffering during the discharges of the urine. It often happens that this can be discharged only in certain positions, and drop by drop, with great pain; is slimy, smells offensively, and is mixed with blood and gravel. The examination by the catheter affords the most certain information respecting the existence of calculi, if, as sometimes happens, the stone does not lie enclosed (encysted) in a certain part of the bladder. To destroy urinary stones, internal means have been recommended; but they are little to be depended on. If the stone in the bladder increases so much that it prevents entirely the discharge of the urine, it is necessary to remove it by the knife (lithotomy), or by breaking it to pieces in the bladder (lithotrity). The operation of lithotomy may be performed in four different ways: 1. By the apparatus minor, an operation described by Celsus, and very simple, requiring few instruments; whence the name. The operator introduces his middle finger and fore finger up the anus, and endeavours to bring the stone toward the neck of the bladder. He then cuts on the left side of the perinæum, directly on the stone. 2. In the high operation, the bladder is opened on the opposite side, over the pubes. 3. When the apparatus major is applied, the urethra is widened so much, that a forceps can be introduced, and the stone extracted. The name of apparatus major is used on account of the number of instruments required. 4. The lateral operation is generally considered as the safest and most effectual, and is the most common. Its object is to divide that part of the urethra which suffered extremely in the application of the apparatus major, from the means used to distend it; and as the lower side of the urethra cannot be divided far enough, without the rectum being wounded, the cut is directed sideways. This is the reason of the name. Lately, the operation of cutting the bladder through the rectum has been introduced.

STONE WARE. Under the denomination *stone ware* are comprehended all the different artificial combinations of earthy bodies which are applied to useful purposes. See *China Ware* and *Pottery*.

STONES, PRECIOUS. See *Gems*.

STONES, SHOWERS OF. See *Meteoric Stones*.

STONEHENGE. See *Salisbury Plain*.

STOOL OF REPENTANCE. See *Cutty Stool*.

STOP; a word applied by violin and violoncello performers to that pressure of the strings by which they are brought into contact with the finger-board, and by which the pitch of the note is determined. Hence a string, when so pressed, is said to be *stopped*.—*Stop of an organ;* a collection of pipes similar in tone and quality, which run through the whole, or a great part, of the compass of the instrument. In a great organ, the stops are numerous and multifarious.

STOP-LAWS. See *Execution*.

STORAX; gum-resin, obtained by incisions in the branches of a small tree (*styrax officinalis*), which grows wild in the countries about the Mediterranean. The leaves are alternate, oval, petiolate, green above, whitish and downy beneath, resembling those of the quince. The flowers are disposed in racemes, white, and very much resemble those of the orange. The fruit is whitish and downy, juiceless, and contains one or two angular nuts. The storax of commerce is chiefly obtained from Asiatic Turkey. It has a fragrant odour, and an agreeable, slightly pungent, and aromatic taste; is stimulant, and in some degree expectorant. Formerly it was much employed in medicine, but now is little used, except in perfumes. *Benzoin* is a gum-resin, obtained, in a similar manner, from a species of *styrax*, growing wild in the East Indies.

STORK (*ciconia*). These tall and stately birds are easily distinguished from the herons by the small mouth, the angle not reaching beyond the eyes, as with the last; the beak is also destitute of the nasal furrow, but is similar in other respects, is straight, long, pointed, and compressed. Most of them inhabit Europe, especially between the tropics. They walk slowly, with measured steps; but their flight is powerful and long continued. They have no voice, but produce a clattering with their bills, by striking the mandibles together. Their food consists of fish, reptiles, small quadrupeds, worms, and insects. The common stork of Europe (*C. alba*) is about four feet in length, from the tip of the beak to the extremity of the nails. The prevailing colour of the plumage is white, with some black about the wings. It is found throughout the greater part of Europe, but passes the winter in Africa. It takes up its residence and breeds in the midst of cities, and is everywhere protected, as it renders important services in destroying noxious animals. Among the ancients, to kill them was considered a crime, which, in some places, was punished even with death; and, like the ibis, this bird became an object of worship. The stork is remarkable for its great affection towards its young, but especially for its attention to its parents in old age. The gigantic stork, or adjutant of Bengal (*C. argala*), is a celebrated bird, very common about the mouths of the Ganges, and even in the streets of Calcutta, where it is protected by law, as also in other parts of the East Indies. It is stoutly framed, and the extreme length is nearly seven feet. The head and neck are destitute of feathers, and covered with a reddish and callous skin; and from the middle of the latter hangs a fleshy appendage. The bill is enormously large. It lives on reptiles, fish, &c., and even on quadrupeds, whose bones it breaks previously to swallowing. In captivity its gluttony is extreme.

STORR, GOTTLOB CHRISTIAN, doctor of theology, consistorial counsellor and first minister to the court at Stuttgart, was born, in 1746, at Stuttgart, where he died in 1805. Storr was distinguished for his pious life, and faithful fulfilment of his duties as professor of theology and preacher at Tübingen, as well as for his great learning, exhibited in various works, among which are his Observations on the Syriac Translations of the New Testament, in 1772, and on the Arabian Gospels, in 1775, both in German; *Observationes ad Analogiam et Syntaxin Hebraicam pertinentes* (1779); his Commentary on the Epistle to the Hebrews; his learned treatise On the true Object of Christ's Death (2d ed. Tübingen, 1809); On the Object of the Evangelical History, and the Epistles of John (1786); New Defence of the Revelation of John (1783), the *Dissertationes in Apocalypsis quædam Loca* belonging to it, and his *Doctrinæ Christianæ Pars theoret. e sacr. Lit. repetita* (1793).

STORTHING; the Norwegian diet (from *Thing*, assembly, and *stor*, great, elevated). The citizens qualified to vote choose electors, who, from among themselves or their constituents, select the representatives, whose number is not to be under seventy-five, nor above one hundred. A member of the *storthing* must be thirty years old; must have resided ten years in the realm; must hold no office, civil or military; must not be attached to the court, nor receive a pension. Generally the *storthing* is held every third year, at the beginning of February, in the capital, Christiania. After the *storthing* is opened by the king or his deputy, it chooses one fourth part of its members to form the *logthing*: the other three fourths form the *odelsthing*. Each *thing* holds its sessions separately, and with open doors, and the debates are published, unless a resolution to the contrary be passed. The *storthing* is authorized to make and abolish laws; to impose taxes; open loans; see that the finances are properly administered; grant the civil list, &c. The government protocols, and all public papers, including treaties with foreign powers, must be laid before them, the secret articles only excepted, and these must not be contrary to the public ones; it may summon any body before it, except the king and viceroy; and it confers naturalization. Laws are proposed in the *odelsthing*, by its members, or by a counsellor of state: if they pass there, they go to the *logthing*. The king is to sign the bills, or to decline so doing. If a bill, twice rejected by the king, is adopted without alteration by a third regular *storthing*, it becomes a law, even without the king's sanction. In this manner nobility was abolished in Norway.

STOSCH, Philip, baron von, a distinguished numismatist, born 1691, at Cüstrin, in Germany, studied at Frankfort on the Oder, and was designed for the ecclesiastical profession; but his taste led him to devote his time to numismatics. In 1708, he visited Jena, Dresden, Leipsic, and other places in Germany, for the purpose of examining cabinets of medals and antiquities. In 1710, the Dutch statesman Fagel employed him on a mission to England, where he became acquainted with Sir Hans Sloane, lords Pembroke, Winchelsea, Carteret, and other virtuosi. In 1714, he went to Rome; and, returning to Germany, he engaged in collecting other antiques, particularly engraved gems. At Augsburg he discovered the celebrated "*Peutinger Table.*" (q. v.) He was afterwards English resident at Rome, for the purpose of observing the conduct of the Pretender and his adherents. This post becoming hazardous after the accession of pope Clement XII., who favoured the Stuarts, baron Stosch withdrew to Florence, where he died in 1757. His collections, and especially those of cameos and engraved gems, were peculiarly valuable. A catalogue of the latter was drawn up by Winckelmann. The baron himself published two volumes of plates, representing his gems, engraved by Picart and Schweikart.

STOVES. Stoves differ from fire-places (q. v.) by enclosing the fire so as to exclude it from sight, the heat being given out through the material of which the stove is composed. The common Holland stove, of which we have an almost infinite variety of modifications, is an iron box, of an oblong square form, intended to stand in the middle of a room. The air is admitted to the fire through a small opening in the door, and the smoke passes off through a narrow funnel. The advantages of this stove are, 1. that, being insulated, and detached from the walls of the room, a greater part of the heat produced by the combustion is saved. The radiated heat being thrown into the walls of the stove, they become hot, and, in their turn, radiate heat on all sides to the room. The conducted heat is also received by successive portions of the air of the room, which pass in contact with the stove. 2. The air being made, as in furnaces, to pass through the fuel, a very small supply is sufficient to keep up the combustion, so that little need be taken out of the room. 3. The smoke, being confined by the cavity of the stove, cannot easily escape into the room, and may be made to pass off by a small funnel, which, if sufficiently thin and circuitous, may cause the smoke to part with a great portion of its heat, before it leaves the apartment. These circumstances render the Holland stove one of the most powerful means we can employ for keeping up a regular and effectual heat, with a small expense of fuel. The disadvantages of these stoves are, that houses containing them are never well ventilated, but that the same air remains stagnant in a room for a great length of time. A dryness of the air is also produced, which is oppressive to most persons, so that it often becomes necessary to place an open vessel of water on the stove, the evaporation of which may supply moisture to the atmosphere. Stoves are very useful in large rooms, which are frequented occasionally, but not inhabited constantly; as halls, churches, &c. In cold countries, where it is desirable to obtain a comfortable warmth, even at the sacrifice of other conveniences, various modifications of the common stoves have been introduced, to render them more powerful, and their heat more effectual. The Swedish and Russian stoves are small furnaces, with a very circuitous smoke flue. In principle, they resemble a common stove, with a funnel bent round and round, until it has performed a great number of turns or revolutions, before it enters the chimney. It differs, however, in being wholly enclosed in a large box of stone or brick work, which is intersected with air pipes. In operation, it communicates heat more slowly, being longer in becoming hot, and also slower in becoming cold, than the common stove. Russian stoves are usually provided with a damper, or valve, at top, which is used to close the funnel or passage, when the smoke has ceased to ascend. Its operation, however, is highly pernicious, since burning coals, when they have ceased to smoke, always give out carbonic acid in large quantities, which, if it does not escape up chimney, must deteriorate the air of the apartment, and render it unsafe.

Cellar Stoves and Air Flues. Such is the tendency of heated or rarefied air to ascend, that buildings may be effectually warmed by air flues communicating with stoves in the cellar, or any part of the building below that to be warmed. A large suit of apartments may be sufficiently heated in this way by a single stove. The stove, for this purpose, should be of a kind best adapted to communicate heat. It should be entirely enclosed in a detached brick chamber, the wall of which should be double, that it may be a better non-conductor of heat. The space between the brick chamber and stove should not exceed an inch. In the apparatus of the Derbyshire and Wakefield infirmaries, the whole of the air is repeatedly conducted, by numerous pipes, within half an inch of the stove and its cockle. For the supply of fuel, the same door which opens into the chamber, should open also into the stove, that there may never be any communication with the air of the cellar. A current of external air should be brought down by a separate passage, and delivered under the stove. A part of this air is admitted to supply the combustion; the rest passes upward in the cavity between the hot stove and the wall of the brick chamber, and, after becoming thoroughly heated, is conducted through passages in which its levity causes it to ascend, and be delivered into any apartment of the house. Different branches being established from the main pipe, and commanded by valves or shutters, the hot air can be distributed at pleasure to any one or more rooms at a time. This plan is very useful in large buildings, such as manufactories, hospitals, &c., on account of the facility with which the same stove may be made to warm the whole, or any part of them. The advantage of a long vertical draught enables us to establish a more forcible current of warm air. The rooms, while they are heated, are also ventilated, for the air which is continually brought in by the warm pipes, displaces that which was previously in the room, and the air blows out at the crevices and key-holes, instead of blowing in, as it does in rooms with common fire-places.

STOW, John; an English historian and antiquary, born about 1525, in London. His father, a tailor, brought him up to his own business; but his mind early took a bent towards antiquarian researches. About the year 1560, he formed the design of composing the annals of English history, for the completion of which he quitted his trade. For the purpose of examining records, charters, and other documents, he travelled on foot to several public establishments, and purchased old books, manuscripts, and parchments, until he had made a valuable collection. Being thought to be favourable to the ancient religion, an information was laid against him, in 1568, as a suspicious person, who possessed many dangerous books. The bishop of London accordingly ordered an investigation of his study, in which, of course, were found many popish books among the rest; but the result has not been recorded. Two years afterwards, an unnatural brother, having defrauded him of his goods, sought to take away his life by preferring one hundred and forty articles against him, before the ecclesiastical commission; but he was acquitted. He had previously printed his first work, entitled a Summarie of the Englyshe Chronicles, compiled at the instance of Dudley, afterwards earl of Leicester, which was published in 1565, and afterwards continued by Edmond Howes, who printed several editions. He contributed to the improvement of the second edition of Holinshed, in 1587, and gave corrections and notes to two editions of Chaucer. At length, in 1598, appeared his Survey of London, the work on which he had been so long employed, and which came to a second edition during his life-time. He was very anxious to publish his large chronicle, or history of England, but lived only to print an abstract of it, entitled *Flores Historiarum*, or Annals of England. From his papers, Howes published a folio volume, entitled Stow's Chronicle, which does not, however, contain the whole of the larger work, which he had left, transcribed for the press, and which is said to have fallen into the possession of Sir Symonds Dewes. A license was granted him by James I., "to repair to churches or other places, to receive the charitable benevolence of well-disposed people," in the seventy-eighth year of his age. He died, afflicted by poverty and disease, in 1605, at the age of eighty. Stow's Survey has run through six editions, the last in 1754, with considerable additions, and a continuation of the useful lists.

STOWE; a parish in Buckinghamshire, England, two miles north-west of Buckingham, containing the celebrated seat, garden and pleasure-grounds of the duke of Buckingham. The house, situated on an eminence rising from a lake, measures 916 feet from east to west: the saloon, sixty feet long, forty-three feet broad, and fifty-six and a half feet high, cost about £13,500; the state drawing-room, fifty feet by thirty-two, and twenty-two feet high, contains a collection of fine pictures, mostly by the old masters. The library consists of 10,000 printed volumes, with many valuable manuscripts. The house is approached through a Corinthian arch, sixty feet high by sixty wide. The gardens comprise four hundred acres of highly decorated grounds. Temples, obelisks, statues, grottoes, &c., scattered around in great profusion, seem to realize the descriptions of enchanted gardens. The Elysian fields, watered by a small rivulet, issuing from a grotto, and emptying into a lake, contain the figures of heroes, poets and philosophers. In the temple of Ancient Virtue, a circular building of the Ionic order, stand the statues of Homer, Lycurgus, Socrates, and Epaminondas. The temple of British worthies contains busts of Shakspeare, Milton, Pope, Newton, Bacon, Locke, &c. The temple of Concord and Virtue is a handsome building, of an oblong shape, surrounded with twenty-eight fluted Ionic columns. Lord Cobham's pillar is a column 115 feet high, surmounted by a statue. The Gothic temple, a triangular building, with a tower at each end, is richly adorned with old painted glass.

STRABO, a distinguished Greek geographer, was born at Amasia, in Cappadocia, about 19 A. D., studied rhetoric and the Aristotelian philosophy, and afterwards embraced the Stoic doctrines. He travelled through Greece, Italy, Egypt, and Asia, endeavouring to obtain the most accurate information in regard to the geography, statistics and political conditions of the countries which he visited. The time of his death is unknown. His great geographical work, in seventeen books, contains a full account of the manners and governments of different people; his materials were derived from his own observations and inquiries, or from the geographical works of Hecatæus, Artemidorus, Eudoxius, and Eratosthenes, now lost, and the writings of historians and poets. His work is invaluable to us. The last editions are those of Siebenkees (continued by Tzschucke, but not completed, Leipsic, 1796—1811, 7 vols.) and of Coray (4 vols., Paris, 1819.) Those of Casaubon (1620, fol.) and Almeloveen (Amsterdam, 1707, 2 vols., fol.) are also highly esteemed.

STRADA, Famianus; an Italian historian, and elegant writer of modern Latin poetry, born at Rome, in 1572. He entered into the society of the Jesuits in 1592, and became professor of rhetoric at the Roman college, where he resided till his death, in 1649. His most famous works are a History of the Wars in the Netherlands, in Latin, and *Prolusiones Academicæ*, which have been repeatedly published. In one of these prolusions, he has introduced ingenious imitations of the style of the most celebrated Roman poets, of which there are many translations, including those published by Addison, in the Guardian.

STRAFFORD, Sir Thomas Wentworth, earl of, an eminent minister and statesman, was the eldest son of Sir William Wentworth, of an ancient family in Yorkshire. He was born in London, in 1593, and entered of St John's college, Cambridge. After leaving the university, he travelled, and, on his return, received the honour of knighthood. The death of his father, in 1614, gave him possession of a large fortune; and he was soon after appointed *custos rotulorum* of the west riding of Yorkshire, in lieu of Sir John Savile. In 1621, he was chosen member of parliament for the county of York; and when Charles I. asserted that the commons enjoyed no rights but by royal permission, Sir Thomas Wentworth, already distinguished for ability, strenuously called upon the house to maintain that their privileges were rights by inheritance. In 1622, he lost his first wife, of the noble family of Clifford, and in 1625, married Arabella, second daughter of Holles, earl of Clare. On the convening of the new parliament, in the same year, he was one of the six popular members who were prevented serving their country in that assembly, by being appointed sheriffs for their respective counties. He submitted to this arbitrary act in silence; and, soon after, the duke of Buckingham, alarmed at the measures taken against him in parliament, made him overtures, which proved ineffectual, and the favourite revenged himself by obliging him to restore his office of *custos rotulorum* to Sir John Savile. When Charles, among other expedients for raising money, had recourse to a forced general loan, Wentworth refused to pay his contribution, and was first imprisoned in the Marshalsea, and then confined to a range of two miles round the town of Dartford. This restraint was, however, removed when it became necessary to summon a new parliament, in 1628; and he again took his seat for Yorkshire, and became one of the most conspicuous advocates of the petition of right. As he had now proved the strength of his abilities, high terms were offered him by the court, which he finally accepted; and, in 1628, he was created baron Wentworth, and some months afterwards a viscount and privy-counsellor, and on the resignation of lord Scrope, nominated president of the north. The assassination of Buckingham, soon after, freed him from a powerful enemy at court, and he became so influential in the king's council, that his powers in the four northern counties, over which he presided, became enormous; and his commission contained fifty-eight instructions, of which scarcely one did not exceed or violate the common law. In the exercise of this authority, he displayed equal haughtiness, impetuosity, and ability, and, by his strictness in levying exactions, increased the revenue in his district to four or five times the previous amount. Having assiduously cultivated the friendship of archbishop Laud, he was selected by that prelate to proceed to Ireland, as lord-deputy, in 1632. He greatly improved the state of the country, both as regarded law, revenue, and trade (the manufacture of linen being of his own creation); but, at the same time, nothing could be more arbitrary than his system of government, it being his boast that he had rendered the king as absolute in Ireland "as any prince in the whole world could be." On the first symptoms of resistance to the royal authority, he counselled the strongest measures; and after the failure of the king's first expedition against Scotland, he was sent for from Ireland, and created earl of Strafford, and knight of the garter. He returned with the full title of lord lieutenant, with a view to gain subsidies and troops, in which he fully succeeded; and, again repairing to England, took the command in the north, but found himself obliged to retire before the Scottish army, and retreat to York. Charles was now by his necessities obliged to call the long parliament; on which Strafford, aware of the enmity which he had inspired among the popular leaders, wished to return to his government; but the king, hoping that his great talents would be serviceable, encouraged him by a solemn promise that "not a hair of his head should be touched by parliament." Strafford's apprehensions were well founded. The very first movement of the party opposed to arbitrary power, was to impeach him of high treason, with which charge Pym appeared at the bar of the house of lords, November 18, 1640. The articles of impeachment, at first nine in number, were afterwards increased to twenty-eight, the object of which was to convict him of an attempt to subvert the fundamental laws of the country. As in the case of Laud, it was easy to prove that he acted as a friend and promoter of arbitrary measures, but not to substantiate any particular fact to justify a capital charge. Although treated with the extreme of legal rigour, and debarred the assistance of counsel, his own great abilities and force of mind supplied every deficiency; "And never man," says Whitelock, the chairman of the impeaching committee, "acted such a part, on such a theatre, with more wisdom, consistency and eloquence, or with greater reason, judgment and temper." His defence, indeed, was so strong, that the original impeachment was deserted, for the unjustifiable proceeding of a bill of attainder. The bill passed by a great majority: and so great was the animosity borne towards him, that the house of lords was intimidated into compliance. The king, who had imprudently endeavoured to stop the bill by his personal interference, had not sufficient firmness to redeem the pledge of safety which he had previously given, but yielded to the advice of his counsellors, backed by a letter from Strafford himself, who urged him, for his own safety, to ratify the bill. This act has the semblance of being truly heroical; yet it is probable that he did not think that the king would have been swayed by it, since, being assured of the fatal truth, he lifted his eyes to heaven, and, with his hand on his heart, exclaimed, "Put not your trust in princes, nor in the sons of men; for in them there is no salvation." His conduct, from this time to his execution, was in the highest degree composed and noble. At the scaffold, he addressed the people, expressing entire resignation to his fate, and asserting the good intention of his actions, however misrepresented. He fell in the forty-ninth year of his age, lamented by some, admired by more, and leaving behind a memorable but certainly not an unspotted name. The parliament, not long after his death, mitigated his sentence as regarded his children; and in the succeeding reign, his attainder was reversed. He married three times, and, by his second wife, left an only son, and several daughters. See Macdiarmid's *Lives of British Statesmen.*

STRALSUND; a town of Prussian Pomerania, capital of a government of the same name, formerly capital of Swedish Pomerania, on a strait which separates the island of Rugen from the main land; 120 miles east of Hamburg; lon. 13° 32′ E.; lat. 54° 19′ N. population, 15,800. It has a safe and capacious harbour, admitting ships of fifteen feet draught. It was formerly one of the principal Hanse towns. (See *Hansa.*) It has considerable trade. Corn is the principal article of export, of which there are sometimes shipped from 30 to 40,000 quarters. It contains a government house, town house, public library, &c. The aspect is gloomy, the streets narrow. the houses low, built of brick, and remarkable for being pointed at the top. See *Pomerania.*

STRAMONIUM (sometimes called *Jamestown-weed*), a species of *datura*, is now common in waste places throughout the United States, as well as in Europe. It belongs to the *solaneæ*, the same natural family with the tobacco and nightshade, and amply sustains the poisonous character of the tribe. The stem is herbaceous, fleshy, two or three feet high, and branching, furnished with large angular and dentate leaves. The flowers are large, and the corolla funnel-shaped. All parts of the plant exhale a strong and nauseous odour. It is one of the most dangerous of narcotic poisons; and when taken internally, produces vertigo, torpor, and death. Goats, however, eat it with impunity. In small doses, it has been employed with advantage in convulsive and epileptic affections; and smoking the dried leaves has proved beneficial in asthmatic complaints.

STRAND; a street in London, running from Westminster to London proper. It was formerly the road which connected the two towns, when they were entirely distinct from each other, and received its name from its position along the Thames.

STRANGLES; a disorder which attacks most horses, and generally between the ages of three and five years. When strangles occurs in the stables, and now and then also in the field, it proves a severe disease, and shows itself under the appearance of a cold, with cough, sore throat, swelling of the glands under the jaws, or behind and under the ears. Sometimes there is not much external swelling, and the tumours break inwardly, and nature effects a cure. At others, they break outwardly, and sometimes disperse. When the swelling lingers, poultices are preferable to fomentations. Peal recommends blistering the part, to promote suppuration. The horse should be kept very cool, and bran mashes, with warm water, should be his principal support, unless the complaint last long, and produce much weakness, when malt mashes should be substituted. Bleeding is only advisable when the early symptoms are violent.

STRANRAER. See *Wigtonshire*.

STRAPPADO; a barbarous military punishment, now abandoned. It consisted in having the hands of the offender tied behind his back, by which he was drawn to a certain elevation, by a rope, and then left to run suddenly towards the ground, when, being stopped with a sudden jerk, his shoulders were dislocated. This was also one of the punishments of the inquisition, and of criminals in Italy.

STRASBURG, (anciently *Argentoratum*); a city of France, capital of Lower Rhine, formerly capital of Alsace, situated at the conflux of the Brusche and Ille, half a mile west of the Rhine; lon. 7° 45′ E.; lat. 48° 35′ N.; population, 50,000, of which one third are Protestants. It is an ancient, strong, and commercial city, of semicircular form, built on a plain, and divided into several parts, by canals, over which are several bridges. The houses are chiefly of a red stone, lofty, but often heavy and inelegant, built after the German manner; the language and customs of a majority of the inhabitants being still German. A few streets are wide and straight, but most of them are narrow. The fortifications are extensive, divided into the old and new. The citadel is a regular pentagon, lying to the east, and with its out-works extending almost to the Rhine. Strasburg is a bishop's see, and contains a cathedral, six Catholic churches, seven Lutheran, and one reformed, two hospitals, two theatres, two public libraries, a botanic garden, a medical school, a high school, a royal and a Lutheran academy, or university. The cathedral, or minster, founded in 1015, and not completely finished till 1365, is one of the most distinguished specimens of Gothic architecture existing. Its tower, 474 feet high, is ascended by a stairway of 725 steps, and is a masterpiece of architecture, being built of hewn stone, cut with such nicety as to give it at a distance some resemblance to lace. The tower was planned and begun by Erwin of Steinbach, after whose death, in 1318, it was continued by his brother John. The clock is also a masterpiece of mechanism, for, besides the hour of the day, it describes the motions of the planets. The Protestant church of St Thomas contains a splendid monument, erected by Louis XV. to marshal Saxe. This city is famous in the history of the reformation; and the two principal Protestant seminaries in France are at Strasburg and Montauban. It is favourably situated for trade, in a fertile and well-cultivated country, the Rhine connecting it with Switzerland on the one side, and with Netherlands on the other. The exports are corn, flax, hemp, wine, and spirituous liquors; also linen, sail-cloth, blankets, carpets, hardware, leather, cotton, lace, tobacco, and snuff. Guttenberg is said to have invented the art of printing at Strasburg, in 1436. (See *Printing*). The ancient bishopric of Strasburg, in Alsace, lying on both sides the Rhine, has been secularized, and is now incorporated with France and Baden. (See *Alsace*.) It contained 500 square miles, with a population of 30,000 souls.

STRATEGY (from the Greek *στρατηγία*, military command, military skill); the art and science of leading armies, the art of conducting military operations; a branch of military science, which has only of late been treated separately, and in a certain sense contradistinguished to tactics, which treats of the mode of disposing troops for battle, of directing them during its continuance, and of all the exercises, arms, &c., necessary to fit them for action. Some writers on strategy have run into extremes, as is usual in treating of subjects whose limits have not been settled. Bülow, for instance, has attempted to reduce this branch of the military art to the geometrical calculation of angles, lines, &c., in his Theory of Modern Warfare—a work which was opposed by Henry de Jomini and other French writers. The latter, in his *Traité des grandes Opérations Militaires*, avoids Bülow's fault of theorizing, and founds his views more on the results of actual experience, especially on the campaigns of Frederic the Great and Napoleon, but falls, in his turn, into partial views, by insisting constantly on the principle of keeping forces concentrated, and leading them by the shortest possible way to meet the enemy. He has forgotten that all armies are not so trained for battle as the troops of those two great generals, and that the forte of all generals does not lie in the conduct of an engagement. His theory of internal lines of operations, therefore, though correct in certain cases, cannot hold good so universally as he represents. Though the principles of Bülow will never be adopted in their whole extent, yet he did considerable service to military science, by directing attention to what is now called strategy, as a particular branch. To the works mentioned in the articles *Bülow* and *Jomini*, we may add the archduke Charles's Principles of Strategy, illustrated by the Description of the Campaign of 1796, in Germany.

STRATFORD UPON AVON; a town in Warwickshire, upon the Avon, ninety-three miles north-west of London, celebrated as the birth-place and burial-place of Shakspeare. The house in which he is said to have been born, is still shown: that in which he resided after his return to Stratford, and died, was pulled down, in 1759, by a clergyman who bought the place a few years before. The same person cut down the famous mulberry tree, planted by Shakspeare. The church contains the monument and bust of Shakspeare. The latter was originally coloured to resemble life, and, in 1793, was painted white, by order of Malone. These coats of paint have much disfigured the characteristic markings of the bust. This monument was erected within seven years after his death, and contains the Latin distich cited in the article *Shakspeare*. On the grave-stone beneath are the following lines, attributed to himself:

Good friend, for Jesus' sake, forbear
To dig the dust enclosed here;
Blest be the man that spares these stones,
And curst be he that moves my bones.

Stratford on Avon was a place of considerable consequence previous to the conquest, and was famous for a monastery, founded in the reign of Ethelred. It suffered severely by fire in the reign of Elizabeth, by a flood in 1588, and also by the effects of the civil wars between Charles I. and the parliamentary forces. The town is well built and paved, and consists of twelve principal streets. The trade consists chiefly in corn and malt, and considerable quantities of grain and flour are sent to Birmingham and its neighbourhood. The Avon is navigable to the Severn, and a canal opens a communication with the northern parts of the kingdom, since the completion of which the trade has been rapidly improving. The townhall is a fine modern building of the Tuscan order, erected in 1768, and in the following year dedicated to the memory of the immortal bard, by David Garrick, who honoured it with the name of Shakspeare's Hall, and presented a grand statue of the poet, which is placed in a niche at the north end of the building. The principal room is sixty feet long, and thirty wide, and contains whole-length portraits of Queen Anne, John Frederick, Duke of Dorset, Shakspeare, and Garrick. Here are also two public libraries, one of which is called the Shakspearian library, and a neat theatre, built on the site of a part of Shakspeare's garden. Population of the town in 1831, 3,488. in 1841, 3321.

STRATH, in Scotland, is generally understood to mean a valley broader than a dale or glen, which receives its peculiar appellation from a river passing through it, as *Strathbogie*, *Strathspey*, &c., or some particular characteristic, as *Strathmore*, the Great Valley, &c., which traverses Scotland on the south side of the Grampian mountains.

STRATUS. See *Clouds*.

STRAW. In the manufacture of straw hats, the culms of several kinds of grasses are used. The Leghorn straw is the culm of a sort of wheat sown on poor soils, and cut green. Rye straw is much used in this manufacture. The straw is cut at the joints; and the outer covering being removed, it is sorted of equal sizes, and made up into bundles of eight or ten inches in length, and a foot in circumference. They are then to be dipped in water, and shaken a little, so as not to retain too much moisture: the bundles are afterwards to be placed on their edges, for the purpose of bleaching, in a box which is sufficiently close to prevent the evaporation of smoke. In the middle of the box is an earthen dish, containing brimstone, broken in small pieces: this is set on fire, and the box covered over and kept in the open air several hours. It is the business of one person to split and select the straws for fifty others, who are braiders. The splitting is done by a small machine, made principally of wood. The straws, when split, are termed *splints*, of which each worker has a certain quantity: on one end is wrapped a linen cloth, and they are held under the arm, and drawn out as wanted. Plaiters should be taught to use their second fingers and thumbs, instead of the fore-fingers, which are often required to assist in turning the splints, and thus much facilitate the plaiting; and they should be cautioned against wetting the splints too much. The finest hats are made in the neighbourhood of Leghorn, whence they are exported in great numbers. The Dunstable manufacturers in Bedfordshire, England, are of a fine quality. In the English plait, the straws are flattened in a hand mill, previous to working; but in the Leghorn, the pressure is applied after the plaiting is made.

STRAWBERRY (*fragaria*). This is one of the most wholesome and most delicious of our fruits. The pulp is light, melting, and, notwithstanding, but little watery, and does not undergo the acetous fermentation in the stomach. It exhales a most delightful perfume, and the flavour is exquisite, especially immediately after being plucked from the stem. The plant belongs to the natural family *rosaceæ*, together with the rose and raspberry. The root gives out several long, slender, creeping shoots, which take root at intervals, and form so many new stocks; the leaves are composed of three leaflets, supported on a long foot-stalk, which is provided with stipules at the base. From the midst of the leaves arise two or three simple, slender, silky stems, from four to six inches high, and terminated by a few white flowers, disposed in a sort of corymb. After flowering, the receptacle increases, acquires a pulpy and succulent consistence, and finally a red colour, when the strawberries have attained maturity. The strawberry is easily cultivated, and numerous varieties have been produced; some of great excellence have been obtained recently. It forces well, and, with a little trouble in choosing a succession of sorts, may be had almost every month in the year. An open situation, and rich, loamy soil, rather strong, is required for most varieties; and from their large mass of foliage and flowers, they must, till the fruit is set, have copious supplies of water. The row culture is most convenient, and frequent renewal ensures vigorous plants and large fruit. A palatable jam, wine and vinegar are prepared from strawberries; and they are sometimes preserved entire, in sirup or in wine.

STREAKS; the uniform ranges of planks on the bottom or sides of a ship, or the continuations of planks joined by the ends to each other, and reaching from the stem, which limits the vessel forward, to the stern-post and fashion pieces, which terminate her length abaft.

STREETS, PAVEMENT OF. See *Pavement*.

STRELITZ (Russian, *strielzi*, or *strelzi*, guards); the life-guards of the Russian czars, until the reign of Peter the Great. They were instituted in the latter half of the sixtenth century, by Ivan Wasiliewitsch, and formed, also, the standing infantry of the empire, amounting, sometimes, to 40,000 men. Their numerous privileges and their frequent insurrections, rendered them as formidable as the Roman pretorians or the Turkish janizaries. Peter the Great dissolved the corps in 1697, in consequence of an insurrection, put several thousands to death, and banished the rest to Astrachan. Having been guilty of some disturbances here, they were entirely dispersed and destroyed in 1705.

STRENGTH OF MATERIALS. [The following article is extracted from Arnott's *Elements of Physics.*] "*Strength depends on the magnitude, form and position of bodies, as well as on the degree of cohesion in the material.*"—*Of similar bodies the largest is proportionally the weakest.* Suppose two blocks of stone left projecting from a rock that has been hewn, of which blocks one is twice as long, and deep, and broad, as the other. The larger one will by no means support as much more weight at its end than the other, as it is larger; and for two reasons: 1. In the larger, each particle of the surface of attachment, in helping to bear the weight of the block itself, has to support by its cohesion twice as many particles beyond it, in the double extent of projection, as a particle has to support in the shorter block; and, 2. both the additional substance, and any thing appended at the outer extremity of the larger, are acting with a double lever advantage to break it, that is, to destroy the cohesion. Hence, if any such projection be carried out very far, it will break off or fall by its own weight alone. What is thus true of a block supported at one end, is equally true of a block supported at both ends, and, indeed, of all masses, however supported, and of whatever forms. That a large body, therefore, may have proportionate strength to a smaller, it must be made still thicker and more clumsy than it is made longer; and, beyond a certain limit, no proportions whatever will keep it together, in opposition merely to the force of its own weight. This great truth limits the size and modifies the shape of most productions of nature and of art,—of hills, trees, animals, architectural or mechanical structures, &c.

Hills. Very strong or cohesive material may form hills of sublime elevation, with very projecting cliffs and very lofty perpendicular precipices; and such are seen, accordingly, where the hard granite protrudes from the bowels of the earth, as in the Andes of America, the Alps of Europe, the Himalayas of Asia, and the Mountains of the Moon in Central Africa. But material of inferior strength exhibits more humble risings and more rounded surfaces. The gradation is so striking and constant from granite mountains down to those of chalk, or gravel, or sand, that the geologist can generally tell the substance of which a hill is composed by the peculiarities of its shape. Even in granite itself, which is the strongest of rocks, there is a limit to height and projection; and if an instance of either, much more remarkable than now remains on earth, were by any chance to be produced again, the law which we are considering would prune the monstrosity. The grotesque figures of rocks and mountains seen in the paintings of the Chinese, or actually formed in miniature for their gardens, to express their notions of perfect sublimity and beauty, are caricatures of nature, for which originals can never have existed. Some of the smaller islands in the Eastern ocean, however, and some of the mountains of the chains seen in the voyage towards China, along the coasts of Borneo and Palawan, exhibit, perhaps, the very limits of possibility in singular shapes. In the moon, where the weight of gravity of bodies is less than on the earth, on account of her smaller size, mountains might be many times higher than on the earth; and observation proves that the lunar mountains are much higher than ours. By the action of winds, rains, currents and frost upon the mineral masses around us, there is unceasingly going on an undermining and wasting of supports, so that every now and then immense rocks, or almost hills, are torn by gravity from the station which they have held since the earth received its present form, and fall in obedience to the law now explained.

The size of vegetables, of course, is obedient to the same law. We have no trees reaching a height of 300 feet, even when perfectly perpendicular, and sheltered in forests that have been unmolested from the beginning of time; and oblique or horizontal branches are kept within very narrow limits by the great strength required to support them. The truth that, to have proper strength, the breadth or diameter in bodies must increase more quickly than the length, is well illustrated by the contrast existing between the delicate and slender proportions of a young oak or elm, while yet in the seedsman's nursery, and its sturdy form when it has braved for centuries all the winds of heaven, and has become the monarch of the park or forest.

Animals furnish other interesting illustrations of this law. How massive and clumsy are the limbs of the elephant, the rhinoceros, the heavy ox, compared with the slender forms of the stag, antelope and greyhound! And an animal much larger than the elephant would fall to pieces from its own weight alone, unless its bones were made of much stronger materials. Many have questioned whether the mammoth, or antediluvian elephant, could have lived on dry land, or must have been amphibious, that its great body might generally be borne up by water. The whale is the largest of animals, but feels not its mighty weight because lying constantly in the liquid support of the ocean. A cat may fall with impunity where an elephant or ox would be dashed to pieces. The giants of the heathen mythology could not have existed upon this earth, for the reason which we are now considering; although on our moon, where, as already stated, weight is much less, such beings might be. In the planet Jupiter, again, which is many times larger than the earth, an ordinary man from hence would be carrying, in the simple weight of his body, a load sufficient to crush the limbs which supported him. The phrase *a little compact man,* points to the fact that such a one is stronger in proportion to his size than a taller man. The same law limits the height and breadth of architectural structures. In the houses of fourteen stories, which formerly stood under the castle of Edinburgh, there was danger of the superincumbent wall crushing the foundation.

Roofs. Westminster hall approaches the limit of width that is possible without very inconvenient proportions or central supports; and the domes of the churches of St Peter, in Rome, and St Paul, in London, are in the same predicament.

Arches of a Bridge. A stone arch much larger than those of the magnificent bridges in London, would be in danger of crushing and splintering its material.

Ships. The ribs of timbers of a boat have scarcely a hundredth part of the bulk of the timbers of a ship ten times as long as the boat. A ship's yard of ninety feet contains, perhaps, twenty times as much wood as a yard of thirty feet, and, even then, is not so strong in proportion. If ten men may do the work of a three-hundred-ton ship, many more than three times that number will be required to manage a ship three times as large. Very large ships, such as the two built in Canada in the year 1825, which carried each nearly 10,000 tons, are weak from their size alone; and the loss of these two first specimens of gigantic magnitude will not encourage the building of others like them.

The degree in which the strength of structures is dependent on the form and position of their parts, will be illustrated by considering the two cases of longitudinal and transverse compression; and the rule for giving strength will be found to be, to cause the force tending to destroy, to act, as equally as may be, on the whole resisting mass, at the same time, and with as little mechanical advantage as possible. In *longitudinal compression*, as produced by a body on the top of a pillar, the weight, while the support remains straight, can only destroy the support by crushing it in opposition to the repulsion and impenetrability of all its atoms. Hence a very small pillar, if kept perfectly straight, supports a very great weight; but a pillar originally crooked, or beginning to bend, resists with only part of its strength; for the whole weight above is supported on the atoms of the concave side only, which are therefore in greater danger of being overpressed and crushed, while those on the convex side, separated from their natural helpmates, are in the opposite danger of being torn asunder. The atoms near the centre, in such a case, are almost neutral, and might be absent without the strength of the pillar being much lessened. Long pillars or supports are weaker than short ones, because they are more easily bent; and they are more easily bent because a very inconsiderable, and therefore easily affected, yielding between each two of many atoms, makes a considerable bend in the whole; while in a very short pillar, there can be no bending without a great change in the relation of proximate atoms, and such as can be effected only by great force. The weight or force bending any pillar may be considered as acting at the end of a long lever, reaching from the end of the pillar to its centre, against the strength resisting at a short lever from the side to the centre. The strength, therefore, has relation to the difference between these. Shortness, then, or any stay or projection at the side of the pillar, which, by making the resisting lever longer, opposes bending, really increases the strength of a pillar. A column with ridges projecting from it is, on this account, stronger than one that is perfectly smooth. A hollow tube of metal is stronger than the same quantity of metal in a solid rod, because its substance, standing farther from the centre, resists with a longer lever. Hence pillars of cast-iron are generally made hollow, that they may have strength with as little metal as possible. In the most perfect weighing-beams for delicate purposes, that there may be the least possible weight with the required strength, the arms, instead of being of solid metal, are hollow cones, in which the metal is not much thicker than writing paper. Masts and yards for ships have been made hollow, in accordance with the same principle. In nature's works, we have to admire numerous illustrations of the same class. The stems of many vegetables, instead of being round externally, are ribbed or angular and fluted, that they may have strength to resist bending. They are hollow, also, as in cornstalks, the elder, the bamboo of tropical climates, &c., thereby combining lightness with their strength. A person who visits the countries where the bamboo grows, cannot but admire the almost endless uses to which its straightness, lightness and hollowness, make it applicable among the inhabitants. Being found of all sizes, it has merely to be cut into pieces of the lengths required for any purpose; and nature has already been the turner, and the polisher, and the borer, &c. In many of the Eastern islands, bamboo is the chief material of the ordinary dwellings, and of the furniture,—the fanciful chairs, couches, beds, &c. Flutes and other wind instruments there are merely pieces of the reed, with holes bored at the requisite distances. Conduits for water are pipes of bamboo; bottles and casks for preserving liquids are single joints of larger bamboo, with their partitions remaining; and bamboo, split into threads, is twisted into rope, &c. From the animal kingdom, also, we have illustrations of our present subject—the hollow stiffness of the quills of birds; the hollow bones of birds; the bones of animals generally, strong and hard, and often angular externally, with light cellular texture within, &c.—*Transverse Pressure.* When a horizontal beam is supported at its extremities, its weight bends it down more or less in the middle, the particles on the upper side being compressed, while the parts below are distended; and the bending and tendency to break are greater, according as the beam is longer and its thickness or depth is less. The danger of breaking, in a beam so situated, is judged of, by considering the destroying force as acting by the long lever reaching from the end of the beam to the centre, and the resisting force or strength as acting only by the short lever from the side to the centre, while only a little of the substance of the beam on the under side is allowed to resist at all. This last circumstance is so remarkable, that the scratch of a pin on the under side of a plank resting as here supposed, will sometimes suffice to begin the fracture. Because the resisting lever is small in proportion as the beam is thinner, a plank bends and breaks more readily than a beam, and a beam resting on its edge bears a greater weight than if resting on its side. Where a single beam cannot be found deep enough to have the strength required in any particular case—as for supporting the roof of a house—several beams are joined together, and in great variety of ways, as is seen in house-rafters, &c., which, although consisting of three or more pieces, may be considered as one very broad beam, with those parts cut out which do not contribute much to the strength.—The *arched form* bears transverse pressure so admirably, because, by means of it, the force that would destroy, is made to compress all the atoms or parts at once, and nearly in the same degree. The atoms on the under side of an arch, resting against immovable abutments, must be compressed about as much as those on the upper side, and cannot therefore be torn or overcome separately. The whole substance of the arch, therefore, resists, almost like that of a straight pillar under a weight, and is nearly as strong. To be able to adapt the curve to the size of an arch, and to the nature of the material, requires in the architect a perfect acquaintance with measures, &c. An error which has been frequently committed by bridge-builders is, the neglecting to consider sufficiently the effect of the horizontal thrust of the arch on its piers. Each arch is an engine of oblique force, pushing the pier away from it. In some instances, one arch of a bridge falling, has allowed the adjoining piers to be pushed down towards it, by the thrust, no longer balanced, of the arches beyond, and the whole structure has given way at once, like a child's bridge built of cards. It is not known at what time the arch was invented, but it was in comparatively modern times. The hint may have been taken from nature; for there are instances, in alpine countries, of natural arches, where rocks have fallen between rocks, and have there been arrested and suspended, or where burrowing water has at last formed a wide passage under masses of rock, which remain balanced, among themselves, as an arch above the stream. Nothing can surpass the strength and beauty of some modern stone bridges—those, for instance, which span the Thames as it passes through London. Iron bridges have been made with arches twice as large as those of stone, the material being more tenacious, and calculated to form a lighter whole. That of three fine arches, between the city of London and Southwark, is a noble specimen; and, compared with the bridges of half a century ago, it appears almost a fairy structure of lightness and grace. The great domes of churches, as those of St Peter's in Rome and St Paul's in London, have strength on the same principle as simple arches. They are, in general, strongly bound at the bottom with chains and iron bars, to counteract the horizontal thrust of the superstructure. The Gothic arch is a pointed arch, and is calculated to bear the chief weight on its summit or key-stone. Its use, therefore, is not properly to span rivers as a bridge, but to enter into the composition of varied pieces of architecture. With what effect it does this, is seen in the truly sublime Gothic structures which adorn so many parts of Europe. The following are instances, in smaller bodies, of strength obtained by the arched form: A thin watchglass bears a very hard push; a dished or arched wheel for a carriage is many times stronger to resist all kinds of shocks than a perfectly flat wheel; a full cask may fall with impunity where a strong square box would be dashed to pieces; a very thin globular flask or glass, corked and sent down many fathoms into the sea, will resist the pressure of water around it, where a square bottle, with sides of almost any thickness, would be crushed to pieces. We have an illustration, from the animal frame, of the arched form giving strength, in the cranium or skull, and particularly in the skull of man, which is the largest in proportion to its thickness: the brain required the most perfect security, and by the arched form of the skull, this has been obtained with little weight. The common egg-shell is another example of the same class: what hard blows of the spoon or knife are often required to penetrate this wonderful defence provided for the dormant life! The weakness of a similar substance, which has not the arched form, is seen in a scale from a piece of freestone, which so readily crumbles between the fingers. To determine, for particular cases, the best forms of beams and joists, and of arches, domes, &c., is the business of strict calculation, and belongs, therefore, to mathematics, or the science of measures. It was a beautiful problem of this kind, which Mr Smeaton solved so perfectly in the construction of the far-famed Eddystone light-house. See *Light-House*.

STRENGTH, FEATS OF. Doctor Brewster, in his work on *Natural Magic*, gives some striking instances of muscular strength, and also of the effects produced by applying the principles of the mechanical powers to the human frame, from which we extract the following:—Firmus, a native of Seleucia, who was executed by the emperor Aurelian for espousing the cause of Zenobia, was celebrated for his feats of strength. In his account of the life of Firmus, who lived in the third century, Vopiscus informs us, that he could suffer iron to be forged upon an anvil placed upon his breast. In doing this, he lay upon his back, and, resting his feet and shoulders against some support, his whole body formed an arch, as we shall afterwards more particularly explain. Until the end of the sixteenth century, the exhibition of such feats does not seem to have been common. About the year 1703, a native of Kent, of the name of Joyce, exhibited such feats of strength in London and other parts of England, that he received the name of the *second Samson*. His own personal strength was very great; but he had also discovered, without the aid of theory, various positions of the body, in which men even of common strength could perform very surprising feats. He drew against horses, and raised enormous weights; but as he actually exhibited his power in ways which evinced the enormous strength of his own muscles, all his feats were ascribed to the same cause. In the course of eight or ten years, however, his methods were discovered, and many individuals of ordinary strength exhibited a number of his principal performances, though in a manner greatly inferior to Joyce. Some time afterwards, John Charles van Eckeberg, a native of Harzegerode, in Anhalt, travelled through Europe, under the appellation of *Samson*, exhibiting very remarkable examples of his strength. This, we believe, is the same person whose feats are particularly described by doctor Desaguliers. He was a man of the middle size, and of ordinary strength; and, as doctor Desaguliers was convinced that his feats were exhibitions of skill, and not of strength, he was desirous of discovering his methods; and, with this view, he went to see him, accompanied by the marquis of Tullibardine, doctor Alexander Stuart, and doctor Pringle, and his own mechanical operator. They placed themselves round the German so as to be able to observe accurately all that he did; and their success was so great, that they were able to perform most of the feats the same evening by themselves, and almost all the rest when they had provided the proper apparatus. Doctor Desaguliers exhibited some of the experiments before the royal society, and has given such a distinct explanation of the principles on which they depend, that we shall endeavour to give a popular account of them. 1. The performer sat upon an inclined board with his feet a little higher than his hips. His feet were placed against an upright board well secured. Round his loins was placed a strong girdle with an iron ring in front. To this ring a rope was fastened. The rope passed between his legs through a hole in the upright board, against which his feet were braced, and several men or two horses, pulling on the rope, were unable to draw him out of his place. 2. He also fastened a rope to a high post, and, having passed it through an iron eye fixed in the side of the post some feet lower down, secured it to his girdle. He then planted his feet against the post near the iron eye, with his legs contracted, and, suddenly stretching out his legs, broke the rope, and fell backwards on a feather bed. 3. In imitation of Firmus, he laid himself down on the ground, and when an anvil was placed upon his breast, a man hammered with all his force a piece of iron, with a sledge-hammer, and sometimes two smiths cut in two with chissels a great cold bar of iron laid upon the anvil. At other times, a stone of huge dimensions was laid upon his belly, and broken with a blow of the great hammer. 4. The performer then placed his shoulders upon one chair, and his heels upon another, forming with his backbone, thighs, and legs, an arch. One or two men then stood upon his belly, rising up and down while the performer breathed. A stone one and a half feet long, one foot broad, and half a foot thick, was then laid upon his belly and broken by a sledge-hammer—an operation which was performed with much less danger than when his back touched the ground. 5. His next feat was to lie down on the ground. A man being then placed on his knees, he drew his heels towards his body, and, raising his knees, he lifted up the man gradually, till, having brought his knees perpendicularly under him, he raised his own body up, and, placing his arms around the man's legs, rose with him, and set him down on some low table or eminence of the same height as his knees. This feat he sometimes performed with two men in place of one. 6. In his last, and apparently most wonderful performance, he was elevated on a frame work, and supported a heavy cannon placed upon a scale at some distance below him, which was fixed to a rope attached to his girdle. Previous to the fixing of the scale to the rope attached to his girdle, the cannon and scale rested upon rollers; but when all was ready, the rollers were knocked away, and the cannon remained supported by the strength of his loins. These feats may be briefly explained thus:—The feats No. 1, 2, and 6, depend entirely on the natural strength of the bones of the pelvis, which form a double arch, which it would require an immense force to break, by any external pressure directed to the centre of the arch; and as the legs and thighs are capable of sustaining four or five thousand pounds when they stand quite upright, the performer has no difficulty in resisting the force of two horses, or in sustaining the weight of a cannon weighing two or three thousand pounds. The feat of the anvil is certainly a very surprising one. The difficulty, however, really consists in sustaining the anvil; for when this is done, the effect of the hammering is nothing. If the anvil were a thin piece of iron, or even two or three times heavier than the hammer, the performer would be killed by a few blows; but the blows are scarcely felt when the anvil is very heavy, for the more matter the anvil has, the greater is its enertia, and it is the less liable to be struck out of its place; for when it has received by the blow the whole momentum of the hammer, its velocity will be so much less than that of the hammer as its quantity of matter is greater. When the blow, indeed, is struck, the man feels less of the weight of the anvil than he did before. because, in the reaction of the stone, all the parts of it round about the hammer rise towards the blow. This property is illustrated by the well-known experiment of laying a stick with its ends upon two drinking glasses full of water, and striking the stick downwards in the middle with an iron bar. The stick will in this case be broken without breaking the glasses or spilling the water. But if the stick is struck upwards, as if to throw it up in the air, the glasses will break if the blow be strong, and if the blow is not very quick, the water will be spilt without breaking the glasses. When the performer supports a man upon his belly, he does it by means of the strong arch formed by his back-bone and the bones of his legs and thighs. If there were room for them, he could bear three or four, or, in their stead, a great stone, to be broken with one blow. A number of feats of real and extraordinary strength were exhibited about a century ago, in London, by Thomas Topham, who was five feet ten inches high, and about thirty-one years of age. He was entirely ignorant of any of the methods for making his strength appear more surprising; and he often performed by his own natural powers what he learned had been done by others by artificial means. A distressing example of this occurred in his attempt to imitate the feat of the German Samson by pulling against horses. Ignorant of the method which we have already described, he seated himself on the ground, with his feet against two stirrups, and by the weight of his body he succeeded in pulling against a single horse; but in attempting to pull against two horses, he was lifted out of his place, and one of his knees was shattered against the stirrups, so as to deprive him of most of the strength of one of his legs. The following are the feats of real strength which doctor Desaguliers saw him perform:—1. Having rubbed his fingers with coal ashes to keep them from slipping, he rolled up a very strong and large pewter plate. 2. Having laid seven or eight short and strong pieces of tobacco-pipe on the first and third finger, he broke them by the force of his middle finger. 3. He broke the bowl of a strong tobacco-pipe, placed between his first and third finger, by pressing his fingers together sideways. 4. Having thrust such another bowl under his garter, his legs being bent, he broke it to pieces by the tendons of his hams, without altering the bending of his leg. 5. He lifted with his teeth, and held in a horizontal position for a considerable time, a table six feet long, with half a hundred weight hanging at the end of it. The feet of the table rested against his knees. 6. Holding in his right hand an iron kitchen poker three feet long and three inches round, he struck upon his bare left arm, between the elbow and the wrist, till he bent the poker nearly to a right angle. 7. Taking a similar poker, and holding the ends of it in his hands, and the middle against the back of his neck, he brought both ends of it together before him; and he then pulled it almost straight again. This last feat was the most difficult, because the muscles which separate the arms horizontally from each other, are not so strong as those which bring them together. 8. He broke a rope about two inches in circumference, which was partly wound about a cylinder four inches in diameter, having fastened the other end of it to straps that went over his shoulder. 9. Doctor Desaguliers saw him lift a rolling stone of about 800 pounds weight with his hands only, standing in a frame above it, and taking hold of a frame fastened to it. Hence doctor Desaguliers gives the following relative view of the strengths of individuals.

Strength of the weakest men, . . .	125 lbs.
Strength of very strong men, . . .	400 —
Strength of Topham, ...	800 —
The weight of Topham was about . .	200 —

One of the most remarkable and inexplicable experiments relative to the strength of the human frame, is that in which a heavy man is raised with the greatest facility, when he is lifted up the instant that his own lungs and those of the persons who raise him are inflated with air. The heaviest person in the party lies down upon two chairs, his legs being supported by the one and his back by the other. Four persons, one at each leg, and one at each shoulder, then try to raise him; and they find his dead weight to be very great, from the difficulty they experience in supporting him. When he is replaced in the chair, each of the four persons takes hold of the body as before, and the person to be lifted gives two signals by clapping his hands. At the first signal, he himself and the four lifters begin to draw a long and full breath; and when the inhalation is completed, or the lungs filled, the second signal is given for raising the person from the chair. To his own surprise and that of his bearers, he rises with the greatest facility, as if he were no heavier than a feather. When one of the bearers performs his part ill, by making the inhalation out of time, the part of the body which he tries to raise is left, as it were, behind. Among the remarkable exhibitions of mechanical strength and dexterity, we may enumerate that of supporting pyramids of men. This exhibition is a very ancient one. It is described, though not very clearly, by the Roman poet Claudian; and it has derived some importance in modern times, in consequence of its having been performed in various parts of Great Britain by the celebrated traveller Belzoni, before he entered upon the more estimable career of an explorer of Egyptian antiquities. The simplest form of this feat consists in placing a number of men upon each other's shoulders, so that each row consists of a man fewer, till they form a pyramid terminating in a single person, upon whose head a boy is sometimes placed with his feet upwards.

STRETTO (*Italian*) signifies, in music, that the movement to which it is prefixed is to be performed in a quick concise manner.

STRIKE; a measure of capacity, containing four pecks.

STRIKE, among seamen, is a word variously used. When a ship, in a fight, or on meeting with a ship of war, lets down or lowers her top-sails at least half mast high, she is said to *strike*, meaning that she yields, or submits or pays respect to the ship of war. Also, when a ship touches ground in shoal water, she *strikes*. And when a top-mast is to be taken down, the word of command is, *Strike the top-mast*, &c.

STROGANOFF; a distinguished Russian family, descended from a merchant, Anika Stroganoff, who, in the sixteenth century, resided at Solwytschegodzka, and gave rise to the discovery of Siberia. The czar Ivan granted to Jacob and Gregory Stroganoff the desert country along the Kama, from Perm to the Ssülwa river, and on the banks of the Tschussowa. They were originally fur-traders, but, to defend themselves against the Siberian and Nogaian robbers, were allowed to build forts, and collect troops. They also administered justice, suppressed insurrections, and, in fact, protected the north-east of Russia. They had extended the Moscovite territory to the chain of the Ural; and when the Mongolian conqueror of Siberia, Kutschjum, intended to destroy the settlements of the Stroganoffs, on the Kama, they received, May 30, 1574, a grant of the enemy's country, which allowed them to settle on the banks of the Tobol, to wage war with Kutschjum, and to work mines. They offered five bands of robbers, commanded by revolted Cossack hetmanns, employment in their service, urging them to give up their dishonest mode of life. Thus the Cossack Jermack, and his companions were induced to leave the Wolga, and, being joined by many additional forces collected by the Stroganoffs, entered Siberia. The country was conquered after three battles, the taking of Kutschjum's camp by storm. The capital, Sibir, was captured, October 26, 1581. (See the *Chronicle of the Stroganoffs*, Müller's *History of Siberia* (in German), and Karamsin's *History of Russia.*) A descendant of Anika, baron Gregory Stroganoff, since 1827 a member of the council of the Russian empire, is proprietor of the important salt and iron works in Perm, established by his ancestors. From 1805 to 1808, he was Russian ambassador at Madrid: afterwards at Stockholm, and in the memorable period of 1821, at Constantinople, where he distinguished himself by talent, firmness, and humanity, in the most critical conjunctures, and laboured strenuously to protect the Greeks and the Greek church.

STROKE OF THE SUN (*coup de soleil*). When the direct rays of the sun, during the hot season of the year, are allowed to strike for some time upon the skin, an inflammation is produced, accompanied with blisters and sharp pains. After a few days, the inflammation ceases, and the epidermis peels off. If the head is exposed to the sun, the brain is sometimes affected in a similar manner. The blood collects in great quantities, the vessels become swollen, the face and eyes appear red, and violent pains in the head follow. A feverish heat pervades the whole body; lethargy, or suffering which prevents sleep, apoplexy, with or without extravasation of blood, or an inflammation of the blood ensues, and often terminates fatally. Exposure by sleeping in the sun is particularly dangerous.

STROMBOLI. See *Lipari Islands*.

STRONG BEER. See *Brewing*.

STRONTITES; a peculiar earth, discovered in 1793, and thus named by doctor Hope of Edinburgh, in allusion to its having been first noticed in a mineral first brought from Strontian, in Argyleshire. Klaproth examined the mineral the same year, without a knowledge of the experiments of doctor Hope, and called the earth *strontian*. Pure strontites is of a greyish-white colour, possesses a pungent, acrid taste, and when powdered in a mortar, the dust which rises irritates the lungs and nostrils. It is an unusually heavy earth, approaching barytes in specific gravity. It requires rather more than 160 parts of water at 60° to dissolve it; but of boiling water much less. On cooling, it crystallizes in thin, transparent, quadrangular plates, seldom exceeding a quarter of an inch in length, and frequently adhering together. These crystals contain about 68 parts in 100 of water; are soluble in little more than twice their weight of boiling water. The solution of strontites has the property of converting vegetable blues to green. It tinges the flame of a candle of a beautiful red colour. The experiment may be made by putting a little of the salt composed of nitric acid and strontites into the wick of a lighted candle, or by setting fire to alcohol holding muriate of strontites in solution.[*] Sir H. Davy decomposed this earth by means of the same processes as he employed in the decomposition of the other earths. To the metallic base of it he gave the name of *strontium*, which is a white, solid metal, much heavier than water, and bears a close resemblance to barium in its properties. When exposed to the air, or when thrown into water, it rapidly absorbs oxygen, and is converted into strontian. The salts of strontites are in general more soluble than the salts of barytes, but less so than the salts of lime. The *sulphate* of strontites is of a pure white colour, and is not sensibly soluble in water. *Anhydrous nitrate* of strontites may be prepared by dissolving carbonate of strontites in nitric acid, evaporating the solution to dryness, re-dissolving and evaporating slowly, till the salt crystallizes. It crystallizes in regular octahedrons, which are perfectly transparent. It is soluble in little more than its own weight of water, at the temperature of 60°; but it is insoluble in alcohol. The *hydrous nitrate* of strontites is formed occasionally, when a solution of nitrate of strontites, sufficiently concentrated, is set aside for crystallization. Its crystals are oblique, rhombic prisms. About one quarter of its weight is water. The *carbonate* of strontites is slightly soluble in water impregnated with carbonic acid. It is easily formed by pouring an alkaline carbonate into a solution of nitrate of strontites. *Muriate* of strontites is formed by dissolving carbonate of strontites in muriatic acid, and concentrating the solution till it crystallizes. The crystals are very long needles, consisting, most commonly, of six-sided prisms. Water, at the temperature of 60°, dissolves one and a half times its weight of this salt. Boiling water dissolves any quantity whatever. The crystals slowly deliquesce in a moist atmosphere, When heated, they undergo the watery fusion, and then are reduced to a white powder. In a strong red heat, it melts into liquid.

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[*] The beautiful red fire, which is now so frequently used at the theatres, is composed of the following ingredients:—forty parts dry nitrate of strontites, thirteen parts of finely powdered sulphur, five parts of chlorate of potash, and four parts of sulphuret of antimony. No other kind of mixture than rubbing together on a paper is required.

Native salts of strontites.—1. *Celestine* is found in right rhombic prisms of 104°—the primitive form of the species—which are sometimes terminated by dihedral summits, and also have their acute lateral edges truncated, besides presenting various other partial modifications. Cleavage takes place readily, parallel with all the faces of the primary figure; lustre vitreous, inclining to resinous, sometimes, also, a little to pearly, upon the lateral faces of the prism; colour white, passing to sky and smalt-blue; also reddish-white; transparent or translucent; brittle; hardness between calcareous spar and fluor; specific gravity 3·8. Besides occurring in perfect crystals, celestine is found in broad, foliated, in columnar and fibrous masses, as well as compact; the latter, however, appears to be a mixture of celestine and common limestone. It is composed of strontites 56, and sulphuric acid 42. Before the blow-pipe, it decrepitates and melts, without perceptibly colouring the flame, into a white friable enamel. Reduced to powder, it phosphoresces upon red-hot iron. Celestine is most commonly found in kidney-shaped masses, disseminated through the more recent limestones, sandstones, and amygdaloidal rocks. It also occurs in gypsum rocks, along with marl. Beautiful crystals, of a prismatic form and massive columnar varieties, occur in the sulphur mines of Sicily; also, under the same circumstances, at Bex in Switzerland, and near Cadiz, in Spain. Tabular crystals and lamellar masses are found at Monte Viale, and in the Bristol channel in England. But the most magnificent crystals come from Strontian island, in lake Erie. Handsome, blue foliated specimens are also found at Lockport, in New York. It is also found in several other countries.

2. *Strontianite* is found regularly crystallized in the form of six-sided prisms, modified on the edges, and terminated in a pyramid. It affords, on cleavage, a right rhombic prism for its primary form, whose angles are 117° 32′ and 62° 28′. But regular crystals are very uncommon. Lustre vitreous, slightly inclining to resinous; colour asparagus or apple-green, pale yellowish-brown, yellow and gray; white; streak white; transparent or translucent; hardness intermediate between calc-spar and fluor; specific gravity 3·6. Strontianite is found, for the most part, in fibrous masses, the fibres slightly diverging. It is composed of

Strontites,	69·50	
Carbonic acid,	30·00	
Water,	·50	
		100·00

It is soluble with effervescence in the muriatic and nitric acids; and paper dipped into this solution and afterwards dried, will burn with a red flame. It melts before the blow-pipe, and intumesces, at the same time phosphorescing with a red light. It is dissolved by borax, with a violent effervescence, into a clear globule. Strontianite occurs in metallic veins, traversing primitive and transition mountains. It is found at Strontian, in Scotland; at Bräunsdorf, in Saxony; at Leogang, in Salzburg; and also in Peru.

STROPHADES; four small, rocky islands in the Mediterranean, west of the Peloponnesus; according to the ancient poets, the residence of the Harpies. The largest abounds in olives and other fruits, and produces a little corn, hardly sufficient for its few inhabitants; 26 miles south of Zante; lon. 21° 12′ E.; lat. 37° 29′ N.

STROPHE (from the Greek *στροφη*, from *στρεφω*, I turn); a systematic union of several verses. According to the prevailing metre in the verses, strophes are called *Alcaic*, *Asclepiadæan*, &c. The dithyrambus with the Greeks was confined to no precise rhythm, and rolled along without any division into strophes. But the hymns and choruses, with which the tragedies were interspersed, consisted mostly of long strophes and antistrophes, of uniform measure, with which, also, sometimes alternate pro-odes, mesodes, or epodes, of various measure. The single verses of such poems, considered as mere members of strophes, were called *cola*. As the length of the verses is determined by the number of feet, so the length of strophes is determined by the number of cola. *Monocola* are lyric poems, in which verse of a uniform character is used, without division into strophes. *Dicola* are poems in which the strophes contain verses of but two different kinds. Sometimes these verses interchange in equal number: sometimes two or three verses of the same kind are followed by one of a shorter measure. So there are *tricola*, *tetracola*, &c. The system of strophes, antistrophes, &c., appears to be most developed in the dramatic choruses of the Greeks. The singing of the strophes on the stage, was accompanied with a motion or turn from right to left, towards the images of the gods placed on the sides of the orchestra (in the ancient sense of this word); but the singing of the antistrophe, with a contrary motion, from the left to the right; hence the appellations of *strophe* and *antistrophe*, which seems to have been given to these performances of the dramatic chorus alone, as *ode* and *antode* were applied to the song, unaccompanied with mimic representations. The chorus originally consisted of fifty persons, but, by degrees, reduced to fifteen, was sometimes divided, for the purpose of singing the strophe and antistrophe, into two semi-choruses. In the epode, these were again united. The motions were those of a rhythmic dance, and therefore accompanied by flutes, by which the movement of the verse and that of the dancers were made to harmonize, as appears from the circumstance that the leader of the chorus beat, or indicated time, with shoes, the soles of which were covered with iron.

STROZZI, PHILIP, a celebrated Florentine patriot, one of the richest citizens of Florence in the early part of the sixteenth century, was allied by marriage with the Medici, but was too much attached to the ancient republican constitution to acquiesce in the domination of that house. When the sovereignty was assumed by Alessandro de' Medici, he joined the party which aimed at restoring a free government. Their application for support, to the emperor Charles V., being unattended to, Strozzi induced Lorenzo de' Medici to assassinate the duke. The only result of this action was the immediate succession of Cosmo, whom he opposed at the head of a body of troops; but, being defeated at the battle of Marona, he was made prisoner. Apprehending that he would be put to the torture, to force a disclosure of his accomplices, he anticipated the trial by a voluntary death, with a poniard. Having first traced, with the point of it, the line from Virgil—*Exoriare aliquis nostris ex ossibus ultor !*—he pierced his breast and immediately expired (1538).

STRUENSEE AND BRANDT. John Frederic, count of Struensee, born at Halle, in 1737, after having completed his medical studies, entered upon the practice of physic at Altona, where he formed an acquaintance with the count of Rantzau-Aschberg and Brandt. In 1768, he received the appointment of physician to Christian VII., king of Denmark, whom he accompanied on his travels though Germany, England and France. After Christian's marriage with Caroline Matilda, a coolness arose between the royal pair, of which the queen dowager took advantage to promote the interests of her son, Christian's half brother. The birth of a crown prince, (*Frederic VI.*), widened the breach between Caroline and the queen-dowager, without reconciling Christian to his wife. The nation was divided into two great parties—that of the king, at the head of which was the young count Holk, the royal favourite, and that of the queen-dowager, at Friedensburg. Caroline Matilda aimed at effecting the removal of Holk, with the hope of regaining the king's favour, while Holk endeavoured to increase the distance between her and the king. Thinking Struensee to be as warmly opposed to the queen as he was himself, he advised Christian to employ him in his messages to the queen. But this proved the ruin of Holk: the king became more and more attached to Struensee, and the queen, who observed the change, and contrasted the respectable deportment of Struensee with the arrogance of the favourite, soon admitted him to her confidence; and he effected a reconciliation between her and the king. Struensee now pursued his ambitious plans with redoubled zeal. Bernstorf was removed; Brandt succeeded Holk as director of the theatre and *maître des plaisirs*, and the friends of the queen were brought into office. To secure his influence, Struensee endeavoured to occupy the king with amusements, and particularly to prevent him from communicating directly with his ministers. In 1770, at the instigation of Struensee, the king abolished the council of state, establishing, in place of it, a committee of conference, consisting of the heads of the different departments of the administration, who were only occasionally assembled, and had neither rank nor influence. This measure threw all authority into the hands of the queen and the favourite, and roused the indignation of the Danish nobility, which had enjoyed a seat and vote in the council. Struensee next procured the removal of the old ministers; and all affairs were now administered in the name of the king, by his personal attendants. But the favourite had neither prudence nor firmness to support him in this situation. He became overbearing and impatient of contradiction, and attempts to introduce reformations in the finances, the army, law, &c., raised him up many enemies. He now caused himself to be created count, and, not satisfied with this, procured the dignity of cabinet-minister, with such powers as no Danish minister had ever before possessed. When his enemies attempted to expose his usurpations, the freedom of the press, which he had himself introduced, was subjected to restrictions. But the friends of Struensee were already becoming indisposed towards him, and the people began to show symptoms of dissatisfaction. Struensee was conscious of his danger, and took some precautions to defend himself. But on the night of January 16, 1772, the queen, the favourite, Brandt, and their other partisans, were seized. The officer who commanded the guard (an old enemy of Struensee) had led his officers into the palace, declaring that the king had commanded him to arrest the queen. Count Rantzau-Aschberg then penetrated to the chamber of the king, waked him, and told him that his life was in danger, and that he must sign an order, which the count presented to him. The feeble king obeyed, and the queen was conducted to Kronenburg. An extraordinary commission was instituted for the trial of Struensee, consisting in part of his personal enemies. The proceedings were pushed with severity; and, on the 25th of April, he was condemned to loose his right hand and his head, his body to be quartered and exposed upon the wheel, and his head and hand to be stuck upon a stake. When informed that the king had confirmed the sentence, he received the news with composure, and was executed on the 28th of April, 1772.—See Höst's *Count Struensee and his Ministry* (in Danish, 1824, and more complete in German, 1826), and *Mémoires de Falkenskiold* (Paris, 1826).

STRUTT, Joseph, an English antiquary, born in 1749, at Springfield, in Essex, was articled to an engraver, and obtained the gold and silver medals of the royal academy. He published, in 1773, his work entitled the Regal and Ecclesiastical Antiquities of England (4to.), containing representations of the English monarchs from Edward the Confessor to Henry VIII. This was followed by *Horda Angel Cynnan*, or a complete view of the manners, customs, arms, habits, &c., of the English, from the arrival of the Saxons to the times of Henry VIII., &c. (1774, 1775 and 1776, 3 vols. with 157 plates). In 1777 and 1778, he published a Chronicle of England, which he meant to extend to six volumes, but dropped the design for want of encouragement. His Biographical Dictionary of Engravers appeared in 1785 and 1786, in two vols., and his Complete View of the Dresses and Habits of the People of England, &c., in 1796 and 1799 (4to.). In 1801, he published his last and favourite work, entitled the Sports and Pastimes of the People of England (with forty plates, new octavo edition, with 140 plates, 1827.) He died in London, in October, 1802, aged fifty-three. His modest character scarcely met, during his life-time, with the encouragement it deserved. He left some manuscripts, from which have since been published his Queen Hoo Hall, a romance, and Ancient Times, a drama (4 vols. 12mo.); also the Test of Guilt, or Traits of Ancient Superstition, a dramatic tale.

STRYCHNIA; a vegetable alkali, found in the fruit of two species of the *strychnos*. It is obtained by the following process: The bean is rasped down as small as possible, and exposed to the action of nitric ether in a Papin's digester. What remains after the digestion is treated with alcohol, and the alcohol is evaporated to dryness, and the residue dissolved in water. To the aqueous solution potash is added, which throws down the strychnia in the form of a white crystalline precipitate. This alkali has also been extracted from the upas poison. The properties of strychnia, in a state of perfect purity, are as follows: It has a crystalline structure (often presenting four-sided prisms, terminated by four-sided pyramids), is of a white colour, has an intolerably bitter taste, and leaves a metallic impression in the mouth; it is destitute of odour, and is not altered by exposure to the air; it is neither fusible nor volatile, except at temperatures at which it undergoes decomposition. It is very little soluble in cold water, 100,000 parts of that liquid dissolving only fifteen parts of the alkali; but it dissolves in 2500 times its weight of boiling water. When it is introduced into the stomach, it acts with prodigious energy. A locked jaw is induced in a very short time, and the animal is speedily destroyed. Half a grain of strychnia blown into the throat of a rabbit, proved fatal in five minutes, and brought on locked jaw in two minutes. A great variety of salts of this alkali may be obtained by treating it with the different acids, and by double decomposition. Sulphate of strychnia crystallizes in cubes, and is soluble in less than ten times its weight of cold water. It consists of sulphuric acid 90·5 and strychnia 9·5. Muriate of strychnia crystallizes in very small needles, and is more soluble in water than the sulphate. Nitrate of strychnia acts with more violence upon animals than the pure alkali. Solutions of the salts of strychnia, when exposed to a heat of 212°, become volatile.

STRYPE, John, a voluminous contributor to English ecclesiastical history and biography, was born in 1643, and educated at St Paul's school, whence, in 1661, he was removed to Jesus college, and afterwards to Catharine hall, Cambridge. He graduated M. A. in 1666, and, taking orders, was nominated to the perpetual curacy of Theydon Boys, in Essex. His works are, Ecclesiastical Monuments (in 3 vols., folio); Annals of the Reformation (4 vols., folio, 1709—1731); an augmented edition of Stow's Survey of London (in 2 vols., folio, 1720); and Lives of Cranmer, Parker, Grindal, Whitgift, Sir John Cheke, Sir Thomas Smith, and bishop Aylmer. He was for many years rector of Hackney, in which he spent the latter part of his life, which was prolonged to the age of ninety-four.

STUART. The Stuart or Stewart family was descended from the great Anglo-Norman family of Fitz Alan, in England. The dignity of seneschal or steward of the king's household, having become hereditary in a branch of this family, settled in Scotland, the title was converted into a surname. Walter, the sixth high steward, married Marjory, daughter of Robert (see *Bruce, Robert*); and, on the extinction of the male line of Bruce, Robert Stewart, their only son, ascended the Scottish throne (1371) under the title of Robert II. His grandson, James I., was murdered at Perth, in 1437. His successors were James II., killed in a war with England (1460); James III., who fell in battle against his rebellious subjects (1488); James IV., who perished fighting against the English (1513); James V. died of chagrin on account of the rebellion of his subjects. His last words were, on hearing of the birth of his daughter Mary, "God's will be done. It came with a lass; it will go with a lass,"—alluding to the crown, which had come into his family by marriage. That daughter (see *Mary Stuart*) perished on the scaffold, and her son James VI. (I. of England) united the crowns of England and Scotland (1603). James I., Charles I., Charles II., James II., Mary and Anne (see the articles) wore the double crown of the two kingdoms until 1714, 343 years from the period when the family ascended the Scottish throne, and 111 from the time of its accession to that of England. James II. was deposed in 1688, and his son James Edward (see *Stuart, James Edward*), who styled himself James III., died in exile, after ineffectual attempts to regain the throne of his ancestors. James III.'s son, Charles Edward (see *Edward, Charles*), died childless, in 1788. His only brother, Henry, cardinal of York, died in 1807, and with him the house of Stuart became extinct. See *Scotland*, division *History*.

STUART, John, earl of Bute. See *Bute*.

STUART, Arabella. See *Arabella Stuart*.

STUART, James Edward Francis; the eldest son of James II., by his second wife, Mary of Modena, born in London, June 10, 1688. He was but five months old when his father was dethroned; and his mother, with her infant, fled to France, where Louis XIV. afforded an asylum to the exiled family at St Germains. (See *James II.*) An attempt was made at the peace of Ryswick, in 1697, to ensure the restoration of this young prince to the throne of his ancestors, which was defeated only by the opposition of his father—as William III. had agreed to procure the recognition of the prince of Wales, as he was styled, as his successor; but James II. rejected the proposal, observing that he could support with resignation the usurpation of his son-in-law, but he could not suffer his son to become a party to it. On the death of the ex-king, in 1701, Louis XIV. recognised his son as king of England, by the title of James III., and a proclamation, in the name of the latter, was addressed to the English nation; but no effective measures were adopted in his favour. The death of William III. revived the hopes of his party; but nothing beyond unavailing negotiation took place till 1708, when a maritime expedition against Scotland was fitted out, in which the prince embarked, under the command of the chevalier Forbin. This armament, however, being attacked by an English fleet of superior force, returned to France without landing the invading forces; and the young adventurer (who assumed the name of the chevalier de St George) joined the French army in Flanders, and distinguished himself by his valour at the battle of Malplaquet. In the latter part of the reign of Anne, repeated intrigues were set on foot to secure the restoration of her brother, or his succession to the crown after her death; but they proved entirely abortive, and, on the treaty of Utrecht taking place, in 1713, he was obliged to submit to a temporary retirement from France; and when he returned to Paris, he resided there incognito. Had not the decease of queen Anne been speedily followed by that of Louis XIV., in 1715, the invasion of Scotland by the Pretender, as he was called, might have led to a very different result from that which actually took place. (See *Anne.*) The regent duke of Orleans wished to maintain peace with George I., and the British ambassador at Paris was informed of the projects of the chevalier de St George by the abbé Strickland, one of his agents, who betrayed his confidence. The earl of Mar, in Scotland, raised the standard of revolt against the house of Hanover, proclaiming the heir of the Stuarts king, under the title of James III.; and the latter, embarking at Dunkirk, made a descent on the Scottish coasts; but he soon perceived that success was hopeless, and was obliged to return to France. Even that kingdom no longer yielded him an asylum, and he was forced to remove, first to Avignon, and then to Rome. In consequence of the disputes which occurred between the duke of Orleans and cardinal Alberoni, the prince was, a few years after, invited to Spain, where he was well received by Philip V.; but the visit had no important influence on his affairs, and Rome again became his retreat, as it was his future residence. In 1720, he married the princess Mary Casimira Sobieska, grand-daughter of the famous John Sobieski, king of Poland. This union was not attended with domestic happiness, and a separation between the husband and wife was with difficulty prevented by the interference of cardinal Alberoni, then a resident at Rome. He took no active part in the expedition against Scotland, under his son, in 1745; and the latter part of his life was dedicated to exercises of piety. He died January 2, 1766.

STUART, Charles Edward. See *Edward, Charles*.

STUART, Henry Benedict Maria Clement, cardinal of York, younger son of James Edward, and the last descendant of the royal line of the Stuarts, was born at Rome, in 1725, and, being destined for the church, the pope bestowed on him the right to hold benefices without receiving the ecclesiastical tonsure. In 1745, when the last effort was made for the restoration of his family, he assumed the command of troops assembled at Dunkirk, to aid the operations of his brother in Great Britain; but the news of the battle of Culloden prevented the embarkation of this armament, and prince Henry returned to Rome. The visions of regal splendour, in which he might have indulged, being thus dissipated, he took holy orders, and, in 1747, pope Benedict XIV. raised him to the purple. He was subsequently made chancellor of the basilica of St Peter, and bishop of Frascati. On the death of his brother, in 1788, he assumed the barren title to which the family had aspired, and caused a medal to be struck, with the inscription, *Henricus Nonus Angliæ Rex*, and on the obverse, *Gratia Dei, non Voluntate Hominum.* When the French conquered Italy, he was obliged to flee to Venice, and was indebted for his support to a pension from the English court. His death took place in 1807. The valuable papers of his grandfather and his father, which had remained in his possession, were, after his decease, sent to England.

STUART, Dr Gilbert, an eminent historical writer, born at Edinburgh, in 1742, was educated in the university of that city, where his father was professor of humanity, and was destined for the legal profession, which he relinquished for that of an author. In 1767, he published an Historical Dissertation concerning the Antiquity of the British Constitution, the merit of which procured him the degree of LL.D. This was followed, a few years after, by his View of Society in Europe, in its Progress from Rudeness to Refinement. Being disappointed in an attempt to obtain the professorship of public law in the university of Edinburgh, he removed to London; and, from 1768 to 1774, he was a contributor to the Monthly Review. He then returned to his native city, and established the Edinburgh Magazine and Review; but his illiberal and virulent criticisms ruined the credit of the work, which was discontinued in 1776. About this time, he published his Observations concerning the Public Law and Constitutional History of Scotland (8vo.); the History of the Reformation in Scotland (1780, 4to.); and the History of Scotland (1782, 2 vols.) In the year last mentioned, he again repaired to London, and engaged as a writer; but habits of intemperance had undermined his constitution, and he once more returned to his native place, where he died in 1786. His works display erudition, industry, and sound judgment, wherever the latter quality is not influenced by his jealousy and hatred of contemporary writers.

STUART, James; a distinguished antiquarian and architectural draughtsman, born in London, in 1713. His father having died when he was young, he assisted his mother by practising fan-painting. Prompted by his inclination, he studied anatomy, geometry, and other branches of science; and having, by his industry, provided for the support of his younger brother and sister, set out, with a very small supply of money, for Rome. He supported himself during his travels by the exercise of his talents, and at Rome made acquaintance with Nicholas Revett, a skilful architect, with whom he went to Athens, in 1751. Here they remained till the latter part of 1753, making drawings and taking measurements of architectural relics. After visiting Salonica, Smyrna, and some of the Ægean islands, they returned to England, in the beginning of 1755. The result of their labours appeared in the work entitled the Antiquities of Athens (1st vol. 1762, folio; 4th vol. 1816). A new and improved edition of this valuable work has recently been published. Stuart died in 1788.

STUCCO (*Italian*) in architecture; a composition of white marble pulverized and mixed with plaster of lime, which, being sifted and wrought up with water, is used like common plaster. Architectural and sculptural ornaments, such as fruits, flowers, garlands, festoons, &c., are made of it. In the interior of buildings, stucco work is generally applied to the ceilings of apartments, the mouldings, &c. On the exterior, it should be confined to those parts which are not much exposed to the rain. In some countries, a stucco of common mortar and of plaster is applied to the outside of houses, and is extremely durable. Vitruvius seems to mention stucco in the second, third, and sixth chapters of the seventh book, under the name of *opus albarium*, or *opus coronarium*. Immediately after the stucco is mixed, it forms a very soft and ductile paste, which, however, soon hardens, and then the desired form is given to it with moulds or with a little spatula of iron. During this operation, it continues to harden, and may even be cut; and at this period, those parts of the ornaments are executed which demand a nice finish. In a few days, it acquires the consistence of dry clay, and ultimately becomes hard like stone, and takes a beautiful polish.

STUDDING-SAILS; certain sails extending, in moderate and steady breezes, beyond the skirts of the principal sails, where they appear as wings to the yard-arms. The top-mast and top-gallant studding-sails are those which are set on the outside of the top-sails and top-gallant sails.

STUDIES. See *Drawing.*

STUFF, in commerce, is a general name for all kinds of fabrics of gold, silver, silk, wool, hair, cotton, or thread, manufactured on the loom; of which number are velvets, brocades, mohair, taffeties, cloth, serges, &c. The term is also used more particularly to denote slight woollen articles used principally for linings and women's apparel.

STUHLWEISSENBURG; or, in Hungarian, **SZEKES FEJERVAR**; in Sclavonic, **BIELIGRAD**; a royal free town of Hungary, capital of a county of the same name, thirty miles south-west of Buda; lon. 18° 25′ E.; lat. 47° 12′ N.; population, 12,244. It was built in the eleventh century, and, during five centuries, was the place where the kings of Hungary were crowned, and on that account called *Alba Regalis.* It is now declined from its former importance, and has a mean appearance, though it contains some good buildings. It has a Catholic gymnasium and some manufactures.

STUM, in the wine trade, is a name for the unfermented juice of the grape, when it has been several times racked off and separated from the sediment. The casks are, for this purpose, well fumigated with brimstone, in order to prevent fermentation, through which the juice would become wine.

STURDY, STAGGERS, GID, TURNSICK, GOGGLES, WORM UNDER THE HORN, WATERY HEAD, and **PENDRO**, are all popular names for hydatids, caused by an animal now known as the *tænias globulus*, which, by some unaccountable way, finds entrance into the brain of the sheep, and settles there, either in some of its ventricles, or more frequently in its substance. Their size varies from that of the smallest speck to that of a pigeon's egg; and the sheep attacked are generally under two years old. These animals are likewise occasionally found in all the natural cavities of the body. Stupidity, a disposition to sit on the rump, to turn to one side, &c., are the indications of this disease, which is not incurable, as has been supposed, but can be cured only by a manual operation—instruments are thrust through the skin and skull, or a wire through the nostrils, and the hydatid is thus destroyed. The latter is called by the English shepherds *wiring.* It is always fatal, if not relieved by art.

STURGEON (*acipenser*). A genus of cartilaginous fishes, allied somewhat to the shark and ray, but differing essentially in structure, as well as in the habits of the species. The mouth is situated beneath the snout, is small, retractile, and destitute of teeth; there are several fleshy beards also beneath the snout, and anterior to the mouth; the body is massive, elongated, and furnished with several longitudinal rows of bony plates implanted in the skin; the gill openings are very large. The sturgeons inhabit the ocean, Mediterranean, Red, Black, and Caspian seas, and the Canadian lakes, keeping in inaccessible depths during the winter season, and in the spring ascending the larger rivers. The common sturgeon of Europe (*A. sturio*) is found in most of the large rivers of that continent, and sometimes is excessively multiplied in the more northern countries. Its flesh is delicate and well flavoured, somewhat resembling veal, and has been esteemed in all ages; but modern nations do not consider it so great a luxury as the ancients, especially the Romans. Its fishery is an object of importance, and caviar is sometimes made of the eggs of the female.

The isinglass sturgeon, or *beluga* of the Russians (*A. huso*), is the largest species. It is not so extensively diffused as the former, and is chiefly found in the Black and Caspian seas, ascending the tributary streams in immense multitudes. It frequently attains the length of twenty or twenty-five feet: and individuals have been taken weighing nearly three thousand pounds. It enters the rivers in the middle of winter, while they are still covered with ice, is very voracious, and pursues all the smaller fishes, but feeds likewise on vegetables. The fishery of this species is vastly important in the south of Russia; and upwards of a hundred thousand are taken yearly. The caviar of commerce is chiefly made from its eggs, which exist in such abundance as to constitute nearly one third of the total weight. This is a very common aliment in Turkey, Russia, Germany, Italy, and especially in Greece, and forms an important article of commerce, very profitable to Russia. The flesh is white, fat, resembling veal, very wholesome, nutritious, and agreeably tasted. The isinglass of commerce is prepared from the air bladder. The fat is also agreeable to the taste, and may be used as a substitute for butter or oil. A kind of leather is made from the skin, and that of the young ones, cleaned and dried, is used for window-glass in some parts of Russia and Tartary. There are a few other species of sturgeon in the rivers of Europe.

STURLASON, Snorro, a native of Iceland, of an old noble family, was born in 1179. He lived for a long time at the courts of Norway and Sweden, was at last *lagmann* of Iceland, and was murdered in 1241, in his castle. He was a man of great talents, and rendered himself famous as a poet, lawgiver, zealous republican, and historian. He composed a general history of the north, from the ancient songs of the scalds, and other historical sources, with taste, and a faithful use of his sources His history is rich in information respecting Sweden and Iceland, somewhat less so in regard to Norway, and affords some notices respecting Russia. Its title is *Heimskringla* (i. e. *Orbis Terrarum*), *edr. Noregs Konunga Soegor seu Historiæ Regum Septentrionalium a Snorrone Sturlonide conscriptæ*, edited by John Peringskiœld (Stockholm, 1697). A new edition, enlarged and corrected by G. Schöning and S. Th. Thorlacius, appeared in 3 vols., folio, at Copenhagen (1777—82). The continuation by Sturla Thoraldson (of Norway), and an unknown writer, is to be found in Christian Jakobi's *Norvegia Monarchica et Christiana* (Glückstadt, 1712, 4to.) (See our article *Scandinavian Literature.*) A long account of Snorro Sturlason is to be found in Wheaton's History of the Northmen.

STUTTERING, STAMMERING, or **HESITATION OF SPEECH**, are terms implying an interrupted articulation, accompanied generally with more or less of straining and distortion of feature. If owing to a vicious conformation of the tongue, or other organ of speech, it is incurable; but when merely spasmodic, the cure is possible, and sometimes easy. In some cases, stuttering is relievable at once, by avoiding carefully the usual hurried repetition of the same syllable, or by opening the mouth, and allowing simple sound to pass, when any one oral position threatens to become spasmodically permanent. Should it arise from the attempt to speak being made while drawing in the breath, it may be avoided by filling the chest well before beginning to speak. A scale of articulate sounds, or table of articulations, with minute directions as to the proper position of the organs in producing the different sounds, may, likewise, in some instances, prove useful to the patient.

STUTTGARD, or STUTTGART; capital of the kingdom of Würtemberg, on the small river Nesenbach; lon. 9° 11′ E.; lat. 48° 46′ N.; thirty-five miles south-east of Carlesruhe, one hundred and sixteen north-west of Münich; population in 1827, 22,000; with the military and strangers, 31,330. It is situated in a valley, two miles from the Neckar, and is divided into three parts, the town proper, two suburbs adjacent to each other, and a separate suburb, called Eslingen. The town proper is badly built, the streets being narrow, and the houses frequently of wood: the suburbs have a better appearance, particularly that of Eslingen, which contains the royal palace, gymnasium, barracks, and other public buildings. The palace is a noble structure, situated near an extensive park, and contains a good collection of paintings, statues, &c. The royal library contains 200,000 volumes, including 12,000 copies of the Bible of different editions. The town has a public library, an old palace, mint, town house, great church, and royal stables. Though surrounded by a wall and ditch, Stuttgard is a place of no strength. The manufactures are on a small scale; the expenditures of the court and nobility forming the chief support of the inhabitants. The surrounding country is fertile and delightful, consisting of eminences covered with vineyards, and valleys laid out in corn-fields. The Solitude, near Stuttgard, is a beautiful country residence of the sovereign. Its name is appropriate, for it stands quite isolated in the middle of a large tract of strictly-preserved country. The deer-park attached to it contains 1700 acres, and the park for wild-hogs 700 acres. The wild-hogs have a feeding place in the forest, where the king and his court shoot, the animals being driven there by the huntsmen.

STYE (*hordeolum*); a little tumor on the eyelids, resembling a barley-corn. The stye is strictly only a little bile, which projects from the edge of the eyelids, mostly near the great angle of the eye. This little tumor is of a dark red colour, much inflamed, and a great deal more painful than might be expected, considering its small size. The latter circumstance is partly owing to the vehemence of the inflammation producing the stye, and partly to the exquisite sensibility and tension of the skin, which covers the edge of the eyelids. On this account, the *hordeolum* very often excites fever and restlessness in delicate, irritable constitutions: it suppurates slowly and imperfectly; and, when suppurated, has no tendency to burst. The stye forms an exception to the general rule, that the best mode in which inflammatory swellings can end, is resolution; for, whenever it extends so deeply as to destroy any of the cellular substance, the little tumor can never be resolved, or only imperfectly so. This event, indeed, would rather be hurtful, since there would still remain behind a greater or smaller portion of dead cellular membrane, which, sooner or later, might bring on a renewal of the stye, in the same place as before, or else become converted into a hard, indolent body, deforming the edge of the eyelid.

STYLE, from *στυλος*, originally the instrument with which the ancients wrote on hard substances, came afterwards to signify the peculiar way of expressing a thought or idea in language or form. Thought strives for manifestation. Its most effectual instrument is language. The object of language is to give an accurate picture of the thoughts of the speaker to the person addressed. Hence it must vary with the character of the persons spoken to. It should always, however, be the natural product of a man's own mind; and when thoughts are fully matured, they can be easily expressed by one who has the richness of a cultivated language at his command. A style of expression which betrays the effect of imitation is always disagreeable; and the more so the more perfect is the imitation. It is body without spirit, the covering of the pupa without the butterfly within. The study of the style of others can be of advantage only as it shows the connexion between their thoughts and their manner of expression. The first requisite of a good style is clear and independent thought. Some have even considered it the only thing necessary; but this is going too far. There is a certain mechanical skill required, to find the best expression of a thought in a language which is the common means of communication among millions of people, all differing in character and circumstances; and it would be mere loss of time for every one to attempt to acquire this by his own experience, for which he may not have a good opportunity; but, unless it is required, even the most highly gifted intellects can produce but an imperfect effect. This circumstance, that we speak and write for others; that our expression, as far as regards ourselves, is the effect of thought, whilst, as respects others, it is intended to become the cause of thought,—is, perhaps, the chief reason for studying style. Still, however, we must repeat, that the most important means for becoming clear to others, is to be clear to ourselves. To excel in writing or speaking, as to excel in music, painting, architecture, mathematics, &c., original talent is the first thing necessary; yet study is indispensable, and without it, hardly any progress could be made in the various branches of human activity. The collected experience of many furnishes principles for a theory of style as well as of every art; but this theory will be of advantage only to him who has the main requisites of clear and just thought. One of the best general rules of style is to be as brief as perspicuity allows; though there are some exceptions, particularly in the case of public speaking, in which it is often necessary to dwell long on important ideas, in order to afford the hearer time to comprehend them fully. In writing, there are very few exceptions to the rule. Logical correctness of thought, though essential to a good style, does not need to be particularly treated of in discussing the theory of style. It falls properly under the head of a disquisition on logic. Beauty of style consists in harmonious expression, an easy flow, and a happy connexion of ideas; in the avoidance of every thing which can offend good taste and decorum; in the use of imagery fitted to strike and gratify the imagination, &c. The two chief branches of style are those of prose and poetry. (See these articles). The ancient rhetoricians speak of a *genus dicendi tenue, medium, et sublime*, or a lower, middle, and higher style. No work, however, necessarily falls, from beginning to end, under either of these heads. Style must sink or rise with the thoughts and feelings expressed. The various relations of life, and the various modes and subjects of communication, renders the division of prose into various kinds of style necessary. Thus we have the didactic style, the style of business, the epistolary, the historical style, and the various oratorical styles. Style began early to be cultivated. Among the Greeks, who, however, confined themselves almost entirely to oratorical expression, Aristotle, Demetrius Phalereus, Dionysius of Halicarnassus, Hermogenes, and Longinus; among the Romans, Cicero and Quinctilian, are the principal writers on style.

STYLE, in the arts. Style, or mode of representation, in the arts, depends on the character of the artist, the subjects, the art itself, the materials used, the object aimed at, &c. The style varies in different periods: thus we have the ante-Greek, or old Oriental style, in which the powerful and colossal prevails; the classical or antique style of the Greeks and Romans (see *Antique*), and the style of Christian art (the romantic or modern style). It is influenced by differences of national character. Thus we have a German, Italian, French, and English style or school. The effect of the national character is particularly apparent in certain arts, e. g. painting or music. The national style also has its periods; at one time aims particularly at the sublime or great, at other times strives after the beautiful, the pleasing, and graceful; as Winckelmann has observed in respect to the Greek plastic art. The style varies, too, with the character of the individual. Here we must distinguish between the style which proceeds from the nature of the subjects to which the genius of the artist inclines him, and his mode of representing those subjects. The latter is called more particularly *manner*. The manner of an artist may be noble or petty, strong or weak; but it is always uniform, and in a certain degree arbitrary, while the style, in its proper sense, is not. The style of great artists continues in their schools, and there usually degenerates into manner. The word *style* is also applied to the different modes of representation, occasioned by the different nature of the various arts: thus there is an architectural, a plastic, a picturesque style. The various branches of an art, too, have each its peculiar style; e. g. in poetry, there are the epic, lyric, dramatic styles; in music, the sacred, opera, concert styles, the vocal and instrumental styles, the quartetto, sonata, symphony styles, &c.; in painting, there are the historical, landscape, &c. styles.

STYLE, OLD and NEW. See *Calendar*, and *Epoch*.

STYLES OF ARCHITECTURE. See *Architecture*.

STYLITES (from στύλος, column; in Latin, *sancti columnares*). The most singular saints of the Christian church were anchorites who, by way of penance, passed the greater part of their lives on the top of high columns. Simeon, a Syrian monk, of the fifth century, invented this insane method of self-torture, about 423. He lived, for nine years, on a column, the top of which was only two ells in circumference, in the open air, near Antioch, afterwards changed it for a higher one, and at length for one forty cubits, and only three feet in diameter at the top; when he slept, he leaned against a sort of balustrade. On this pillar he remained twenty-eight years, till his death, in 459 or 460. The whole time which he passed on the top of pillars, was about thirty-seven years. It appears, however, that he must have descended at times, since he cured the sick by his touch, and performed sundry other miracles; wrote epistles, and took part in political quarrels. The example of this strange being, who was canonized after his death, was imitated by many persons in Syria and Palestine; and the mania continued until the 12th century. The *Dictionnaire de Théologie*, a modern Catholic work, chiefly in defence of the Roman church, has a long article *Stylite*, vindicating St Simeon, as an instrument in the hands of the Creator, for the conversion of the heathen. "Shall we refuse to God," says the writer, "the liberty of attaching the grace of conversion to such means as he may choose?" The article also relates the miracles of St Simeon.

STYMPHALIDES, in mythology; certain birds of prey, which derived their name from the town or the lake of Stymphalus, in Arcadia, near which they lived; or from an ancient hero Stymphalus, whose daughters they were considered to be. They were large birds, with iron wings, beaks and claws, of the size of cranes, in form similar to the ibis, but having straight beaks. They could shoot their feathers like arrows, and thus kill men and beasts. (See *Argonauts.*) Eurystheus imposed on Hercules the task of driving them from the place of their abode, in which he succeeded.

STYMPHALUS. See *Stymphalides.*

STYPTIC; a remedy that has the virtue of stopping blood, or of closing the aperture of a wounded vessel. Many waters and powders are of this nature; but in most of them vitriol is the chief ingredient.

STYRIA. See *Stiria.*

STYX; a nymph, according to Hesiod, the daughter of Oceanus and Thetis, according to others, of Erebus and Night. By Pallas, she became the mother of Zelos and Cratos, Nike and Bia (Zeal, Power, Victory and Strength); according to Pausanias, she bore the Hydra to a certain Piras; and, according to Apollodorus, Proserpine to Jupiter. Her children, by Pallas (according to Hesiod), enjoyed the honour of living with Jupiter, and of being inseparably connected with him, because they and their mother assisted him in the war with the Titans. In honour of Styx herself, it was provided, that the gods should swear by her. According to another passage of Hesiod, Styx lived with her children in the region of Tartarus, in a palace of rocks, separated from the dwellings of the other deities residing there, or in a grotto resting on columns. From this rock issued a cold stream, which flowed far under the earth unseen. It was the tenth arm of Ocean. Nine of them flowed around the earth, and the sea, and then emptied into the tenth, which (the Styx) descended to the lower regions, where it formed the celebrated Stygian pool. By this the gods swore; and if any god violated his oath, he was banished from Olympus, stretched out lifeless, and became overgrown with mould. In this state he remained a year; after which, he suffered other torments for nine years, and, during this period, was excluded from the society of the gods. Styx was originally a rivulet in Arcadia, springing from a high rock, near the town of Nonacris. Its water was considered poisonous to men and beasts, metals were corroded, and vessels burst to pieces by it.

SUABIA, OR SWABIA (in German *Schwaben*); one of the ten circles into which the German empire was divided, previous to its dissolution in 1806. It lay in the south-western part of Germany, comprising some of the most fertile and beautiful parts of the country, traversed from south-west to north-east by the Danube. The Black Forest (q. v.), or

Schwarzwald, intersects the western part of the country, and the Suabian Alps (see *Alps, Suabian*) stretch through the interior. The circle of Suabia, comprising 13,150 square miles, with 2,200,000 inhabitants, was surrounded by France, Switzerland, the Austrian territories, Bavaria, Franconia, and the circles of the Rhine. The soil is fertile, the face of the country mountainous. The circle comprised the sovereign bishoprics of Augsburg and Constance, the princely provostship of Elwangen, and the princely Abbey of Kempten; the abbeys of Salmansweiler, Weingarten, Ochsenhausen, Elchingen, Irsee, Ursperg, Kaisersheim, Roggenburg, Roth, Weissenau, Schussenried, Marchthal, Petershausen, Wettenhausen, Zweifalten and Gengenbach, Neresheim, Heggbach, Guttenzell, Rothmünster, Baindt, Söflingen, Isni, Lindau and Buchau; the duchy of Würtemberg; the margraviate of Baden; the principalities of Hohenzollern and Lichtenstein; the landgraviates of Klettgau, Stühlingen and Baar; the Teutonic commandery of Alschhausen; the counties (*grafschaft*) of Thengen, Heiligenberg, Œttingen, Friedberg-Scheer, Königsegg, Eberstein, Hohenems, Bondorf, Hohengeroldseck; the lands of the counts Fugger; the county and lordships of Truchsess of Waldburg: the lordships of Trochtelfingen, Jungnau, Wiesensteig, Hausen, Möskirch, Tetnang, with Argen, Mindelheim, Schwabeck, Gundelfingen, Justingen, Eglof, Tannhausen and Burg, with Neusickingen, and the thirty-one imperial free cities of Augsburg, Ulm, Esslingen, Reutlingen, Nördlingen, Hall, Ueberlingen, Rotweil, Heilbronn, Gemünd, Memmingen, Lindau, Dünkelsbühl, Biberach, Ravensburg, Kempten, Kaufbeuern, Weil, Wangen, Isny, Leutkirch, Wimpfen, Giengen, Pfullendorf, Buchhorn, Aalen, Bopfingen, Buchau, Offenburg, Gengenbach, Zell on the Hammersbach. Of these numerous sovereignties, the possessions of the Würtemberg, Baden and Fürstenberg houses were the most extensive. Würtemberg, Baden, the two Hohenzollern lines, and Lichtenstein are the only ones that have not been mediatized. (See *Mediatization*). The diets of the circle were commonly held at Ulm, and in time of peace twice a year. *Austrian Suabia* was composed of the hereditary states of the house of Hapsburg, comprising Burgau, Nellenburg, the prefectorate of Suabia, Hohenberg, the Brisgau, Ortenau, and some towns and convents, containing in all a population of about 170,000; but these have been renounced or exchanged. The kingdom of Würtemberg and the grand duchy of Baden comprise at present the greater part of Suabia. The kingdom of Bavaria includes a part on the east side; and other portions are subject to the princes of Hohenzollern and Lichtenstein. (See Pfister's *History of Suabia*, and Leichtlen's *Suabia under the Romans*, both in German). See also our articles *Germany*, and *Hohenstaufen*.

SUABIAN ALPS. See *Alps, Suabian*.

SUABIAN POETS. See *Minnesingers*.

SUADA, OR SUADELA; with the Greeks, Peitho, the goddess of persuasion, whose worship Theseus is said to have established at Athens, in memory of the union of the scattered population of Attica into one state. A statue of this goddess, made by Praxiteles, stood in Athens, in the temple of Aphrodite (Venus). She was represented as belonging, with the Graces, to the company of Venus. Some make Suada herself one of the Graces.

SUARD, JEAN BAPTISTE ANTHONY, a French miscellaneous writer, born at Besançon, in 1733, was the editor of the *Journal de Paris*. During the revolution, he conducted a publication entitled *Nouvelles Politiques*, which professing to oppose democracy, was suppressed, and he was forced to quit France. When Bonaparte was first consul, he returned, and became member of the legion of honour, and of the national institute, and perpetual secretary of the class of French literature. He then established a journal called the *Publiciste*, which was soon given up for the *Archives Littéraires*, and the *Opuscules Philosophiques*. Suard was familiar with English literature, and translated Robertson's Charles V., and History of America, with several other English works. Many of the notices of Englishmen in the *Biographie Universelle* are from his pen. See Garat's *Mémoires historiques sur Suard* (1820). He died at Paris in 1817.

SUBHASTATIO, in the civil law, is the public sale of immovable property, to the highest bidder, as auction, in that law, is the sale of *mobilia*, or personal property. The *jus primi liciti* in some countries, allows the first bidder at an auction sale to take the article at the highest price bid; but he must declare his intention before the hammer falls. The name *subhastatio* originated from the Roman usage of planting a spear (*hasta*) on the spot where a public sale was to take place.

SUBJECT, in philosophy. (See *Object*.) In ethics, *subject* often designates a free agent, in contradistinction to things inanimate. In music, the theme of a fugue is called *subject*. In politics, all the people who owe allegiance to a monarch, have been heretofore called the monarch's *subjects*, even when his authority rested on a contract with the people, and his power was limited. But the French seem unwilling to allow this name to be applied to them since the revolution of 1830. The use of the word in this application, by the minister Montalivet, in the session of January 4, 1832, caused much excitement in the chamber of deputies, and ministers have since avoided it. Those persons who are under the sway of a republic, without participating in all the rights of those in whom the sovereignty rests, are also called *subjects*. Thus Hamburg calls the inhabitants of Ritzebüttel *subjects*.

SUBJECTIVE, AND SUBJECTIVITY. See *Object*.

SUBLIMATE, CORROSIVE. See *Mercury*.

SUBLIMATION; a process by which volatile substances are raised by heat, and again condensed in a solid form. This chemical process differs from evaporation only in being confined to solid substances. It is usually performed either for the purpose of purifying certain substances, and disengaging them from extraneous matters, or else to reduce them into vapour, and combine them under that form. As all fluids are volatilized by heat, and consequently capable of being separated, in most cases, from fixed matters, so various solid bodies are subjected to a similar treatment. Fluids are said to *distil*, and solids to *sublime*, though sometimes both are obtained in one and the same operation. If the subliming matter concretes into a solid, hard mass, it is commonly called a *sublimate;* if into a powdery form, *flowers*. The principal subjects of this operation are, volatile alkaline salts; neutral salts, composed of volatile alkali and acids, as sal ammoniac; the salt of amber, and flowers of benzoin, mercurial preparations, and sulphur. Bodies of themselves not volatile, are frequently made to sublime by the mixture of volatile ones; thus iron is carried over by sal ammoniac, in the preparation of the *flores martiales*, or *ferrum ammoniatum*. The fumes of solid bodies in close vessels rise but a little way, and adhere to that part of the vessel where they concrete.

SUBLIME PORTE. See *Turkey*.

SUBORNATION OF PERJURY. See *Perjury*.

SUBSIDIES. With the Romans, the third line of troops (*corps de reserve*), which, in case of necessity, assisted the two first, was called *subsidium*. Hence *subsidiary* is used in the sense of *auxiliary*. The substantive *subsidy* is used to denote the pecuniary assistance afforded, according to treaty, by one government to another, sometimes to secure its neutrality, but more frequently in consideration of its furnishing a certain number of troops. *Subsidies*, or *supplies*, in England, also denotes the money granted by parliament to the government.

SUBSTANCE (*substantia*), in a philosophical sense, is contradistinguished to *accident*, and signifies that which exists independently and unchangeably; whilst *accident* denotes the changeable phenomena in substance, whether these phenomena are necessary or casual, in which latter case they are called *accidents*, in a narrower sense. The relation of accident to substance is called the relation of inherence, and corresponds to the logical relation of subject and predicate; because the substance is the subject, to which are assigned the qualities, states and relations as predicates· substance itself is the essence, which is capable of these phenomena, and, in spite of these changes, remains the same. Some schoolmen gave the name of substance to that in which exists our ideal of perfection; others to a thing which exists through itself and for itself. Leibnitz calls *substance* that which contains in itself the cause of its changes. In natural science and in common life, *substance* is used to designate material beings, especially simple, inorganic bodies, and the fundamental constituents of organic bodies; e. g. a liquid *substance*. But every substance which falls within the scope of our observation, if we understand by *substance* that which is unchangeable in its phenomena, is only a relative one; i. e. is such only in respect to some others, and is not unconditionally independent, but must be conceived dependent upon one original cause of things. In contradistinction to the *relative* substance, therefore, we speak of *absolute* substance, as the one original essence of all things; and the relation of the latter to the former has been variously considered. Spinoza has treated particularly of the one absolute substance, and given to it infinite thought and infinite extension as inseparable attributes.

SUBSTANTIVE. See *Noun*.

SUBSTITUTION, in the civil law, is the appointment of an heir to succeed in case of the failure of one previously appointed. If the second person is to succeed in case of the death of the first, or of his not accepting the inheritance, the substitution is called *direct*, if the first heir is bound to convey the inheritance to the *substitute* or second heir. This is a *fidei-commissary substitution*. (See *Fidei Commissa*.) The former kind comprises the *vulgar substitution*, which is merely the appointment of a second heir in case the first should not inherit, and the *pupillary substitution*, which is the appointment of an heir, by a father or grandfather, in the name of a minor child, over whom he has paternal power, in case the latter should die a minor. The mother cannot make a pupillary substitution. The latter ceases, 1. by the death of the minor in question before the death of the testator; 2. by his arriving at full age; 3. by the paternal appointment failing to take effect; 4. by the withdrawing of the minor from the paternal power. The quasi pupillary substitution (*substitutio exemplaris*) is the appointment of an heir by parents for an idiot child, in case the child should die in a state of idiocy. If the child has lucid intervals, the parents are not allowed to make such substitution; otherwise, even the mother may do it.

SUBTANGENT OF A CURVE, in the higher geometry, is the line which determines the intersection of the tangent with the axis, or that determines the point where the tangent cuts the axis prolonged.

SUBTENSE, in geometry; the same with the *chord* of an arch.

SUCCESSION POWDER. See *Poudre de Succession*.

SUCCINIC ACID; an acid derived from the distillation of amber. By adding one twelfth part of sulphuric acid, diluted with an equal weight of water, the yield of acid is much increased. The acid, being dissolved in hot water, and filtered, is to be saturated with potash or soda, and boiled with charcoal. The solution being filtered, nitrate of lead is added; whence results an insoluble succinate of lead; from which, by digestion in the equivalent quantity of sulphuric acid, pure succinic acid is separated. It is in white transparent crystals, which possess a sharp taste, and powerfully redden tincture of turnsole. It is soluble in both alcohol and water. It forms salts with the alkalies and oxides. The succinates of potash and ammonia are crystallizable and deliquescent. That of soda does not attract moisture. The succinate of ammonia is useful in analysis to separate oxide of iron.

SUCCORY. See *Endive*.

SUCHET, LOUIS GABRIEL, duke of Albufera, marshal of France, born at Lyons in 1770, entered the military service at an early age (1790), and passed rapidly through the inferior ranks. In 1796, he was attached to the army of Italy, and attracted the notice of general Bonaparte, by his courage, boldness and caution. He then served with distinction under Masséna and Joubert, and was one of the most active and successful of Napoleon's generals in the campaigns of 1805 and 1806. In 1808, he received the command of a division in Spain, and was almost constantly victorious till after the battle of Vittoria. His brilliant services in that country obtained him the marshal's staff, and the title of duke. After the restoration, Suchet was created peer of France. Having accepted, under Napoleon, a command during the hundred days, he was deprived of his seat on the second restoration, but re-admitted in 1819. He died in 1826.

SUCKING FISH. See *Echeneis*.

SUCKLING, SIR JOHN, a wit, courtier, and dramatist, son of a knight of the same name, was born in 1613, at Witham, in Middlesex. He is said to have spoken Latin fluently at five years old, and written it with ease and elegance at nine. After lingering some time about the court, he was despatched upon his travels, and served a campaign under the celebrated Gustavus Adolphus, in the course of which he was present at three battles and several sieges. At the time of the Scotch war, Sir John raised a troop of horse for the king's service, who behaved so badly in the field as to disgrace both themselves and their commander. An abortive attempt to effect the escape of the earl of Strafford, confined in the Tower under articles of impeachment from the commons, implicated Sir John so seriously, that he thought it advisable to retire to France, where he died in 1641. His writings consist of letters written with ease and spirit; some miscellaneous poems; Aglaura, a play; Brennoralt, a tragedy; the Sad One, a tragedy left incomplete; and the Goblins, a tragi-comedy.

SUCRE, Antonio Jose de, was born in 1793, at Cumana, in Venezuela. He was educated at Caracas, and entered the army in 1811, where he served with credit under the orders of the celebrated Miranda. Afterwards he became favourably known for activity, intelligence and courage, under Piar, the mulatto general. From 1814 to 1817, Sucre served in the staff of the army, and displayed the zeal and talent which characterized him. In 1819, he had attained the rank of brigadier-general, and was one of the commissioners appointed, after the battle of Bojaca, to negotiate a suspension of hostilities with Morillo. Subsequently to this, he received the command of a division sent from Bogota to assist the province of Guayaquil. He met with a severe check at Huachi, but succeeded, late in the year 1821, in concluding an armistice with Aymerich, the royalist general, which was, in its effects, equivalent to a victory. It enabled the Peruvian division, under Santa Cruz, to form a junction with the Colombians. Hostilities recommenced in February, 1822, and the united armies were so fortunate as to achieve the decisive victory of Pichincha, May 24, 1822, which was immediately followed by the capitulation of Quito. This brilliant success fixed the public attention upon Sucre, and raised expectations of his future eminence, which the event fully justified. Meanwhile Bolivar had proceeded to the south, at the head of a large army destined to act against the Spanish forces in that quarter; and, in July, 1822, had an interview with the protector, San Martin, at Guayaquil. Early in 1823, Sucre was despatched to Lima as Colombian envoy, accompanied by an auxiliary Colombian army of 3000 men. Lima, having been left unprotected, at this time, by the departure of Santa Cruz to reduce the southern provinces, was retaken by Cantarac, and abandoned by the president, Riva-Aguero, and the Peruvian congress, June 18, 1823. Hereupon Sucre was appointed commander-in-chief of the forces, and, a few days afterwards, supreme military chief, with powers almost unlimited. He retired to Callao, which was invested by the royalsits, until the successes of Santa Cruz in the south obliged Cantarac to evacuate Lima, July 17, 1823. Sucre then determined to place himself at the head of an expedition sent against Arequipa, and to cooperate with Santa Cruz. But the total destruction of the patriot army, under the latter, in Upper Peru, made it necessary for Sucre to re-embark, and return to Callao. In September, general Bolivar made his public entry into Lima, having obtained permission from the Colombian government to prosecute the war in Peru, and was immediately invested with supreme authority in military and political affairs. Of course, general Sucre now became only second in command of the liberating army, consisting of 10,000 men, assembled at Huaras, preparatory to commencing offensive operations. But after the battle of Junin, gained by the patriots, August 5, 1824, Bolivar quitted the army, and went to Lima, to attend to affairs on the coast, leaving the prosecution of the war with Sucre. In the arduous and masterly movements which followed, Sucre displayed the skill of a consummate general. The scene of operations was the mountainous region of Peru. It was necessary that he should march and counter-march, for the space of two months, over this difficult ground, in the face of a much superior army, commanded by the ablest royalist generals in America, whose aim it was to cut off his resources, and reduce him without the hazard of a battle. But the impatience of the troops on each side brought on a general engagement in the field of Ayacucho, December 9, 1824, the most brilliant ever fought in South America. Both armies consisted of veteran troops, well appointed and disciplined, who fought with undaunted courage. The battle resulted in the capture of the viceroy La Serna, and the loss of 2000 of the royalists in killed and wounded; and on the same day general Cantarac, with the rest of the army, comprising fifteen general officers and nearly 4000 men in all, surrendered themselves prisoners of war, by capitulation. Sucre promptly followed up this glorious victory, and his troops entered Cuzco on the 12th of December in triumph. As Olaneta, with a small body of royalists in Upper Peru, refused to comply with the terms of the capitulation of Ayacucho, Sucre was obliged to march upon Puno, which he entered in February, and thence proceeded to Chuquisaca. The death of Olaneta, who was killed in April, in an affray with his own troops, accomplished the delivery of Upper Peru. Until a regular government could be established, Sucre, of course, remained in the exercise of authority as supreme chief; but he summoned a congress to assemble, as speedily as might be, at Chuquisaca, to decide whether Upper Peru should be annexed to Lower Peru, or to Buenos Ayres, or form a republic by itself. The constituent congress decreed, August 11, 1825, to form a new republic, by the name of *Bolivia*, and to call the capital by the name of *Sucre*, in whom the government was vested for the time being, with the title of "captain-general and grand-marshal of Ayacucho." The congress, having solicited Bolivar to prepare a fundamental code for Bolivia, dissolved itself, October 6, 1825. The new congress assembled to receive it, May 25, 1826. Sucre then resigned the discretionary power, which he had exercised hitherto; but, contrary to his expressed wish, and contrary, probably, to his real desire, he was elected president of Bolivia, under the new constitution. How far apprehensions of the auxiliary Colombian army, still remaining in Upper Peru, influenced this decision of the electors, we do not know; but Sucre's reluctance to assume the presidency seems to have been sincere, because it was constantly persisted in by him, and ended in his resigning the office, and returning to Colombia. The influence of the revolution at Lima, in January, 1827, when the Colombian troops there overturned the government of Bolivar, and the people trampled under foot the Bolivian code, was of course felt in Bolivia. But Sucre endeavoured to guard against the example being followed in Bolivia, and at the same time gave the strongest assurances to the new government of Peru, of his determination to maintain a strict neutrality. This did not prevent uneasiness and disturbances from growing up, which eventuated in a serious insurrection, and an attack upon Sucre, in which he was dangerously wounded, and lost an arm. If his resolution had not already been taken, these events would have served to hasten his departure, with that of the auxiliary Colombian army, which took place in August, 1828, in consequence of some hostile movements of the anti-Colombian party, aided by general Gamarra, from Peru. Notwithstanding this reverse in Bolivia, fortune soon threw a new field of distinction in the way of Sucre, in the war which now broke out between Peru and Colombia. He was made commander of the Colombian army of the south, and political chief of the southern departments of the Colombian republic, and led the troops in the series of military operations which terminated in the battle of Tarqui, and the humiliating defeat and capitulation of the Peruvians under general La Mar, February 26, 1829. Sucre became a member of the constituent congress of 1830, and, on his return to Quito from that body, was assassinated in the neighbourhood of Pasto, in June, 1830, whether by private enemies among the Pastusos, or by the instigation of some of his political rivals, is not ascertained. It probably was the act of some of the Pastusos, who remembered the severities which the Colombian army inflicted on them in the campaign of 1822, under the orders of Sucre.

SUDERMANNLAND. See *Sweden*.

SUEABORG, or SWEABORG; the northern Gibraltar; a fortress of Russian Finland, on the gulf of Finland; three miles south of Helsingfors; population, exclusive of the garrison, 3500. The harbour is capable of containing seventy men-of-war, easily defended by batteries that sweep the channel, forming the only entrance for large ships. It is formed by several small islands, of which the principal, called Margöe, contains the arsenals, docks, basins, and magazines for fitting out or repairing men-of war.

SUETONIUS. Caius Suetonius Tranquillus, a Roman writer, born of a plebeian family, flourished about 100 A. D. Little is known of the circumstances of his life. He distinguished himself as an advocate, obtained the tribuneship through the influence of Pliny the younger, and was appointed secretary (*magister epistolarum*) to the emperor Adrian. From an expression of Spartian in his Life of Adrian, we learn that Suetonius lost this place, on account of his intimacy with the empress Sabina; but the particulars of the affair are unknown to us. Of the works of Suetonius, only the Lives of the Twelve Cæsars, and Notices of celebrated Grammarians, Rhetoricians, and Poets, are yet extant. The former work gives an interesting account of the private life and personal character of the twelve first Roman emperors, from Julius Cæsar to Domitian, and is of great value to us from the light which it throws on domestic manners and customs. The best editions of Suetonius are those of Pitiscus (1714), Burmann (1736), Oudendorp (1751), Wolf (1802), and Baumgarten-Crusius (1816 seq.) There is an English translation by Thomson.

SUEUR, Le. See *Lesueur*.

SUEVI; the general name of a number of united tribes, who, before the Christian era, inhabited the greater part of Germany. The Hermunduri, Semnones, Lombards, Angles, Vandals, Burgundians, Rugii, and Heruli, were the most important, at least the most known. In Cæsar's time, they advanced to the Neckar and the Rhine. Tacitus says that their name was derived from the cue in which they tied their hair. In the great migration of the northern nations, the Suevi joined the Alans, entered Gaul, and, in 409, Spain. After the Vandals had gone to Africa, the Suevi spread as far as Portugal. The Visigoths overcame them entirely in 586, and their empire and name disappeared from Spanish history. Those of them who remained in Germany were the ancestors of the present Suabians.

SUEZ, a city of Egypt, on the borders of Arabia (lon. 32° 28′ E.; lat. 29° 59′ N.), is remarkable for its situation at the north end of the Red sea, and on the south border of the isthmus to which it gives name. It was formerly a flourishing mart, being at once the emporium of the trade with India, and the rendezvous of the numberless pilgrims, who, from various parts of the Turkish empire, resorted to Mecca. The assemblage of these, though the stationary population was never large, produced an immense crowd. When Niebuhr was there, Suez appeared to him as populous as Cairo. Since that time, it has greatly declined, in consequence both of the diminution of the general trade of the Red sea, and of the concourse to Mecca. It also sustained great injury from the French. The population is now only about 500. Suez, though a maritime place, is so situated that vessels cannot approach nearer than two and a half miles. The surrounding country is a mere bed of rock, slightly covered with sand. It is, however, the channel of much of the trade of Cairo to Arabia and India, and of the whole of that to Syria and Palestine. It is without walls; has 500 stone houses, of which more than one half were destroyed by the French, and still continue in ruins. The canal which formerly connected the gulf of Suez with the Nile, is now choked up.

SUFFETES. See *Carthage*.

SUFFOCATION. The three ordinary modes of suffocation, or death by the interruption of the breath, are, hanging, drowning, and the respiration of fixed air, or carbonic acid gas. The same result takes place from either of these causes, which is described under the article *Drowning*, and the same process is required for the restoration of animation. In the instance of suffocation by carbonic acid air, whether arising from mines, lime-kilns, or vats of fermenting liquor, the vital powers become more speedily extinct.

SUFFOLK; a maritime county of England, bounded on the east by the German ocean, on the south by Essex, on the north by Norfolk, and on the west by Cambridgeshire. It extends about forty-eight miles in length, and twenty-seven in breadth. It is divided into twenty-one hundreds, and 575 parishes, which are governed ecclesiastically by the bishop of Norfolk, aided by the archdeacons of Sudbury and Suffolk. The county is bounded both on the south and west by navigable rivers, and is intersected by numerous streams. The navigable rivers are, the Lark, which joins the Great Ouse near Mildenhall; the Waveny, which runs due north to the Yar; the Stour, which rises on the western border, passes by Sudbury, Nayland, and after receiving the Breton from the north-west, forms a wide estuary opening to the sea at Harwich; the Gipping, which is formed by the union of three small streams, near Stow-Market, runs south-eastward, by Needham-Market, to Ipswich, where it takes the name of the Orwell, and expanding into an estuary, unites with that of the Stour to form the harbour of Harwich. The Deben has its source near Debenham, and passing Woodbridge, widens into Woodbridge haven, and enters the sea about ten miles below that town. The Ald, rising northward of Framlingham, and taking its course south eastward, after approaching very near the sea at Aldeburgh, where it expands greatly, turns towards the south, and meets the sea below Orford. The Blythe, rising at Laxfield, flows by Halesworth to the sea at Southwold. The only canal in Suffolk runs from Ipswich to Stow-Market.

Suffolk generally presents a level surface, the eminences being inconsiderable. The soil varies much in different parts, and the kinds of land may be distributed into clay, sand, loam, and fen. In the interior is a tract, extending from north to south, consisting chiefly of a strong clay, fertile in a great degree for all the objects of husbandry. A part of it, styled High Suffolk, has a soil so heavy and tenacious, that in wet seasons the by-roads are scarcely passable. Here is made much butter for the London markets; the quantity sent annually to the metropolis being about 40,000 firkins. The sandy districts occupy the eastern and western borders of the county: that towards the coast being highly cultivated, the soil having in many parts been much improved by the addition of shell marl. Great changes have taken place on the Suffolk coasts in consequence of the encroachments of the sea, which have caused the partial destruction of some once considerable towns, as Dunwich and Aldeburgh. On the opposite side of the county the sands are spread over nearly the whole of the north-west angle, in which are a few spots of rich land, but the county chiefly consists of barren heaths and sheep-walks; and towards the Norfolk border the sand is light and blowing, or subject to be driven by the wind, as is also the case with the south-eastern sandlands, between Woodbridge, Orford, and Saxmundham. In these sandy districts are many extensive rabbit warrens. The loam districts are found almost exclusively on the borders of the rivers.

The manufactures of Suffolk consist principally of wool-combing and spinning, making light stuffs, buntings, crapes, and hempen cloth for home consumption; and at Mildenhall and Sudbury are silk-works. The trade of the seaports depends greatly on the exportation of corn and malt; fine sea-salt is made on the coast; the herring and mackerel fisheries are carried on at Lowestoff; and in the Orford river is an oyster-fishery.

Suffolk has seven boroughs: Aldeburgh, Bury St Edmond's, Dunwich, Eye, Ipswich (the county town), Orford, and Sudbury. The market-towns are: Beccles, Bildeston, Botesdale, Brandon, Bungay, Clare, Debenham, Framlingham, Hadleigh, Halesworth, Haverhill, Ixworth, Lavenham, Lowestoff, Mendlesham, Mildenhall, Nayland, Needham-market, Saxmundham, Southwold, Stow-market, and Woodbridge; but the markets of Bildeston, Botesdale, Debenham, Ixworth, Lavenham, Mendlesham, and Nayland, are discontinued or very inconsiderable. Population of the county in 1841, 315,073.

SUFFRAGANS. See *Bishops*.

SUFFRAGIUM (Latin for *vote;* hence the English *suffrage*), with the Romans, signified particularly the vote which every Roman citizen had a right to give in the *comitia*, in regard to the introduction or abolition of laws, the appointment to offices, or any similar business. The citizens assembled, on such occasions, in the *Campus Martius*, every one in his century, which proceeded in its turn to the *ovile*, the place assigned for voting. At the entrance there were small bridges, upon which certain persons (*diribitores*) gave them small ballots; if a new law was to be introduced, two ballots, one with the letters U. R. (*Uti rogas*, Let it be as proposed), the other with the letter A. (*Antiquo*, I leave it as it is); or, if an officer was to be chosen, as many ballots were given as there were candidates. The majority then decided.

SUFISM; the pantheistic mysticism of the East, which strives for the highest illumination of the mind, the most perfect calmness of the soul, and the union of it with God, by an ascetic life, and the subjugation of the appetites. This pantheism, clothed in a mystico-religious garb, has been professed, since the ninth and tenth centuries, by a sect which at present is gaining adherents continually, among the more cultivated Mohammedans, particularly in Persia and India, and about twenty years ago, comprehended 80,000 disciples in Persia, who had renounced Mohammedism. One of the most zealous Sufis is the Arabian Azzeddin, born at Jerusalem, in the twelfth century, whose work Birds and Flowers, a moral allegory, has been translated by Garcia de Tassy (Paris, 1821). All religious persons who live together in a monastic way, devoted to an ascetic life, are called in the East *Sufis*. Some have derived this word from the circumstance that they dress in wool only: but Joseph von Hammer (q. v.), has disproved this derivation, in the Vienna Journal of Art, Literature, the Theatre, &c. (1828, No. 59), and maintains that the name *Sofi* is related to the Greek *σοφος*, wise, and *σοφος*, clear, on account of the mirror which the Sofi carried as a symbol, as well as to the Arabian *safi* (pure). The Arabians had, from the earliest times, an inclination to a life of religious contemplation and monastic solitude. Hence as early as under the first caliphs, religious fraternities were formed, which renounced every thing earthly. As the four orthodox Mohammedan sects established several systems of scholastic philosophy, and a number of monkish orders grew up, in the second century or Hegira, devout persons, perplexed by this labyrinth of discordant theological opinions, found consolation in pious mysticism. This was the origin of the Sufis, whose idea of a mystical union of man with God (which, however, is not founded in the doctrines of Mohammedanism, but according to Langlès, Reiske, Hammer, and Malcolm, is of Indian origin) gave rise to fanaticism, similar to that of the Christian mystics. The Sufis teach their doctrine under the images of love, wine, intoxication, fire, &c.; and the songs of Hafiz, one of the most distinguished Sufis, which seem to be Anacreontic strains in praise of love and wine, should rather be considered as setting forth the mystic doctrines of his sect. Even the dances of the Mohammedan monks have a mystic meaning. By the Devil, the Sufis generally understand the sensual appetite; they acknowledge no other devil than the darkness of the soul, unenlightened by truth. In the first volume of the Transactions of the learned society at Bombay (London, 1819) is an important treatise on the mystic doctrine of the Sufis, by Graham. The doctrines of the Oriental mystics have also been illustrated by Silvestre de Sacy, in the *Pendnameh*, by Erskine, in several treatises in the Bombay Transactions, by Hammer, in his History of Persian Belles-lettres (under the heads of *Dschelaleddin*, *Rumi*, and *Dschami*), and particularly by Tholuck, in his *Ssufismus Persarum*, &c. (Berlin, 1821), from Oriental manuscripts. The most important information on this subject is contained in the Drops of the Well of Life, a Persian work, translated into Turkish, and published, in 1820 (Hegira 1236), at Constantinople (printed at Scutari), a work of the greatest authority with the Persians and Turks. (See Hammer's remarks in the Leipsic Literary Gazette of 1822, p. 2054.) Hussein, known under the name of *Sufi*, wrote a History of the most famous Sheiks of the Order of the Dervises (*Nacshbendi*) in the year 1503 (Hegira 909). The order of *Nacshbendi* originated, indeed, as late as the time of sultan Osman (1319; Hegira 709); but all the Mohammedan religious orders trace their doctrines, and their claims to mystic power (transmitted by the communication of the breath and mantle), to Abubeker and Ali, the disciples of the prophet. Mohammed had said, indeed, "There is no monasticism in the Islam:" but the spirit of monasticism, which originally had its seat in India and Upper Asia, soon penetrated into his religion, when the Arabians, having become acquainted with Indian, Greek, and Persian literature, began to devote themselves to study and contemplation. Thus originated the Mohammedan ascetics. But the pantheistic doctrine of the modern Sufis, subsequently introduced, agrees so remarkably with the doctrine of the Indian Vedanta, that the Indian origin of Sufism cannot be denied.

SUGAR. This important substance is a constituent part of a number of plants. It is afforded especially by the sugar cane, the maple, and the beet. When the cane is ripe, it is cut down, and crushed between iron cylinders, moved by the steam-engine, water, or animal strength. The juice is received in a shallow trough, placed beneath the cylinders; whence it is conveyed into boilers, where it is heated with lime, care being taken to remove the scum as it rises. After having undergone considerable evaporation, it is called *syrup*, and is poured into a vessel called the *cooler*, where it is agitated with wooden stirrers, which break the crust as it forms on the surface. It is afterwards poured into casks, to accelerate its cooling; and while it is still warm, it is conveyed into barrels, standing upright over a cistern, and pierced through their bottom with several holes stopped with cane. The syrup, which is not condensed, filters through these canes, into the cistern beneath, and leaves the sugar in the state called *Muscovado*. This sugar is yellow, and is further purified by various processes, as that of boiling with bullock's blood, or with animal charcoal (bone black); and the passing of the syrup through a system of canvas filters, aided by the intermixture with it of a small quantity of pasty, gypsum and alumina, made by saturating a solution of alum with quicklime. Loaf sugar is procured by putting the sugar, after it has been thus purified, into unglazed earthen, conical-shaped vessels, having a hole at the apex, but placed in an inverted position; the base, after the sugar is poured in, is covered with clay. When thus drained of its impurities, it is taken out of the mould, wrapped in paper, and dried or baked in an oven. It is now loaf sugar, and, according to the number of processes which it undergoes, is called *single* or *double refined*. Sugar candy is formed by dissolving loaf sugar in water, over a fire, boiling it to a syrup, and then exposing it to crystallize in a cool place. This is much esteemed in the East. The syrups which cease to afford sugar, are sold by the name of *molasses*.

Every description of mechanism that is used in refining has been applied to the evaporation of cane juice in the West Indies; but a firm, well-defined crystal has only been obtained by the direct application of flame to evaporation. This method is therefore almost universally adopted; and the more rapid the action, the better is the produce. If the process be retarded by the use of bad fuel, or any other cause, the crystal is soft; the decomposition in the process of draining is great, and the sugars are deteriorated by moist, or sea air, in transit to market. Similar causes produce similar effects to a certain extent in Britain; and for this reason, confectioners prefer sugars that are refined by the direct action of flame, to those operated upon in any manner by steam; these last, when intended for exportation, require to be highly dried, and by much the greater proportion exported are operated upon in the old way.

The manufacture of sugar from the beet, which has now become so extensive in France, is a more complicated process. The beet roots are pulled out of the ground, and their necks and rootlets cut off. They are then washed, reduced to a pulp by a rasping machine, and pressed to obtain their juice, which scarcely differs from that of the cane, except in being somewhat less rich in sugar. The juice is transferred to a copper boiler, furnished with two stop-cocks, the one of which is fixed near the bottom, and the other a few inches higher up, being previously mixed with one four-hundredth part of sulphuric acid, and a quantity of cream of lime, rather more than enough for the saturation of the acid. Heat is now applied as briskly as possible to the copper. A solid thick froth, of a greenish-gray colour, forms and deposits to a considerable amount, and the juice assumes a yellow hue, and becomes clarified. After an hour or two, the scum is removed and thrown on drainers, to save as much of the juice as possible. The clear juice is now run off successively, by the two stop-cocks, beginning with the higher, and the sediment is added to the froth on the filters. The juice is next transferred to a boiler, built on a level below the first, and is there evaporated by a quick fire. Whenever its density reaches to 1·12 (24° of Twaddel's hydrometer), animal charcoal is introduced in powder, and the concentration carried on, till its specific gravity is 1·24 (48° of Twaddel). The froth is removed as it forms. About two parts of animal charcoal are usually added to 100 of juice. The syrup is now filtered through woollen cloth, and allowed to cool. In the course of the night a considerable quantity of sulphate of lime is deposited, which must be carefully separated, prior to boiling up the liquor for crystallization. This concluding stage of the process is the same as that employed for the juice of the sugar cane. The refining of the raw beet sugar is conducted in the same way as that of the cane, and the results are described as being equally productive. The extraction of sugar from the juice of the maple is exceedingly simple. At the commencement of the spring, in the Northern States and Canada, the sugar maple trees are tapped near the ground, by numerous apertures, and the sap is collected in wooden troughs; two hundred pounds of which afford, by evaporation, fifteen pounds of a brownish sugar, which is capable of being refined in the same manner as the sugar from the cane and the beet.

Pure sugar occurs as a white granular solid, but may be crystallized in four or six-sided prisms, terminated by two-sided, or by three-sided summits. Its specific gravity is 1·4′ to 1·6′. The crystals are nearly anhydrous. When exposed to heat, sugar swells up, is decomposed with a peculiar smell, and finally bursts into flames at a temperature somewhat below ignition. When dissolved in one third its weight of water, it forms a syrup, which keeps well in close vessels; but if considerably diluted with water, it rapidly changes, particularly with contact of air, becoming sour and mouldy. Sugar is hardly soluble in pure alcohol, though proof spirit dissolves it in considerable quantity. Syrups, which have been rendered uncrystallizable, bitter and astringent by combination with lime, barytes, and strontites, resume their original properties, when these bases are separated by the equivalent quantity of sulphuric acid. The same holds true with regard to potash and soda. When quicklime is left for several months in combination with syrup, carbonate of lime is deposited in very acute rhomboids, and the sugar is converted into a mucilaginous jelly, of the consistence of paste. Several other oxides, and especially that of lead, have the power of combining with sugar. Thus, when ground litharge is heated with sugar and water, it is dissolved; but after a while the liquor becomes opaque, and lets fall a white, insipid, light powder, insoluble in even a great quantity of boiling water, and which is a compound, in its dried state, of 100 of sugar, and 139·6 of oxide of lead. This saccharate of lead is decomposed by the feeblest acids, which seize the lead. Subacetate of lead does not precipitate sugar from its solution; and as this salt throws down almost every other vegetable and animal substance, it may be employed to separate sugar from other matters. Sugar has no action on salts, except at an elevated temperature. With the aid of water, it then reduces muriate of gold, the nitrates of mercury, and silver, the sulphate of copper, and reduces to the lowest term of oxidation several other salts. Sugar has been analyzed by several chemists. The following is a general view of the results:

	G. Lussac and Thenard.	Berzelius	Prout.	Ure.
Oxygen,	50·63	49·856	53·35	50·33
Carbon,	42·47	43·265	39·99	43·38
Hydrogen,	6·90	6·879	6·66	6·29
	100·00	100·00	100·00	100·00

M. Braconnot has recently extended our views concerning the artificial production of sugar and gum. Sulphuric acid (specific gravity 1·827) mixed with well dried elm dust, became very hot, and on being diluted with water, and neutralized with chalk, afforded a liquor which became gummy on evaporation. Shreds of linen triturated in a glass mortar, with sulphuric acid, yields a similar gum. Nitric acid has a similar power. If the gummy matter from linen be boiled for some time with dilute sulphuric acid, we obtain a crystallizable sugar, and an acid, which M. Braconnot calls the vegeto-sulphuric acid. The conversion of wood, also, into sugar, will no doubt appear remarkable; and when persons not familiar with chemistry, are told that a pound of rags can be converted into more than a pound of sugar, they may be disposed to consider the statement as a piece of pleasantry, though nothing can be more true.

SUGAR-CANE (*saccharum officinarum*). The art of cultivating the sugar-cane has been practised in China from the highest antiquity. It was unknown to the ancient Egyptians, Jews, Greeks, or Romans, and did not pass into Arabia till the end of the thirteenth century. From Arabia it was carried into Egypt, Nubia, and Ethiopia. The Moors obtained it from Egypt, and the Spaniards from the Moors. In the fifteenth century, the cane was introduced into the Canary islands by the Spaniards, and into Madeira by the Portuguese, and thence into the West India islands and the Brazils. Previous to the year 1466, sugar was known in England chiefly as a medicine; and, though cultivated in a few places on the Mediterranean, it was not more generally used on the continent. Now, in point of importance, it ranks next to wheat and rice, among all the products of the vegetable world, and has become the first article of maritime commerce. The Atlantic has been the principal theatre of this trade, which, more than any other circumstance, contributed to give a new spring to commerce in Europe, and to engraft the curse of slavery upon the new world. The sugar-cane, like the bamboo and Indian corn, belongs to the family of the grasses. It grows to the height of seven or eight feet or more, and its broad leaves, and large, silky panicles, give it a beautiful aspect. The stems are very smooth, shining, and filled with a spongy pith; the flowers are small, and very abundant, clothed externally with numerous silky hairs. The sugar-cane flowers only after the lapse of an entire year. In the West Indies, it is propagated by cuttings from the root end, planted in hills or trenches in the spring or autumn. The cuttings root at the joints under ground, and from those above, send up shoots, which, in eight, twelve, or fourteen months, are from six to ten feet long, and fit to cut down for the mill. A plantation lasts from six to ten years. (For the process of making sugar, see the preceding article.) The juice of the sugar-cane is so palatable and nutritive, that, during the sugar harvest, every creature which partakes freely of it, whether man or animal, appears to derive health and vigour from its use. The meagre and sickly negroes exhibit at this season a surprising alteration; and the labouring horses, oxen, and mules, though constantly at work, yet, as they are allowed to eat, almost without restraint, of the refuse plants and scummings from the boiling house, improve infinitely more than at any other period of the year. The sugar-cane is now cultivated in all the warm parts of the globe. Its growth is constant, but varies in rapidity according to the situation, the season, or the weather. The variety from Otaheite has lately elicited some attention, as it is said to succeed in soils too poor for the common variety, and to produce four crops, while the other yields only three: the crystallization is also more regular. The consumption of England alone now amounts to upwards of 400,000,000 pounds, which gives an average of about thirty pounds for each individual. In some parts of the U. S. sugar is manufactured to considerable extent from the sap of two species of maple. This is superior to the common brown sugar of the West Indies, but probably will eventually be superseded by that article, on account of its cheapness. See *Maple.*

SUGAR OF LEAD. See *Lead.*

SUHL, or SUHLA; a town in the government of Erfurt, in the Prussian province of Saxony, lying in a romantic valley on the Lauter, on the southwest side of the Thuringian forest. It owes its importance to the mines which were discovered here in the fourteenth century. The iron works, and the manufacture of arms, form the chief employment of the inhabitants. The fire-arms made here are highly esteemed. Population, 5800; twenty-eight miles south-west of Erfurt.

SUHM, Peter Frederic von, Danish chamberlain and historiographer at Copenhagen, born in 1728, was a philosopher, poet and historian. His father, a Danish admiral, educated him carefully. He died, in 1798, at Copenhagen. Suhm possessed a large fortune, which he used in aid of charitable objects and literary enterprises. He acquired reputation, as a critic and philosopher, by his moral essays and treatises of practical utility, as a poet, by his Northern Idyls and Tales, and as a classical historian, by his works on the history of his country. His library contained 100,000 volumes. He supported a librarian, and paid large sums for copying manuscripts, and in aid of poor students. The library was open to every one. Of his numerous works we need only mention his *Scriptorum Rerum Daniæ Medii Ævi;* his Introduction to the Critical History of Denmark (1769—73, 5 vols., 4to.); the Critical History of Denmark during the Pagan Ages (1774—81, 4 vols.); the Modern History of Denmark (of which seven volumes have been published, the first of which appeared in 1782). His miscellaneous works were collected and reprinted, with an account of his life, at Copenhagen (1788—98, 15 vols.).

SUICIDE. See *Homicide.*

SUIDAS; a Greek grammarian, who lived, according to some, in the eleventh century, according to others, in the tenth. He wrote an encyclopedia, particularly relating to geographical and historical subjects, which, though not perfectly accurate, is yet important, as it contains many things not to be found elsewhere. The best edition is that of Küster (Cambridge, 1705, 3 vols., folio).

SUIR; a river of Ireland, which takes its rise in the Keeper Mountains, in the county of Tipperary, and flowing past the towns of Thurles, Cashel and Cakir, reaches Clonmel, where it becomes navigable by large barges. At Canick sloops may float, and at Waterford quay vessels of the largest class lay along side the wharf in deep water. After a course of ninety miles the Suir is augmented by the water of the Nore and Barrow, and their united volumes poured on into the Lea in the haven of Water.

SUIT AT LAW. See *Action.*

SULIOTS; a mixed people of Arnaout and Greek descent, speaking the Arnaout and the Romaic dialects. They derive their origin from Arnaout and Grecian shepherds, who, in the seventeenth century, settled in the Cassiopeian mountains, occupying a wild valley, enclosed on three sides by almost inaccessible mountains, and accessible on the fourth only by a narrow defile. Here their numbers had increased, towards the end of the last century, to 10,000 souls, in seventy villages, of which Suli or Souli was the capital of the district. The Suliots are of the Greek church; their government was republican. They are brave, hardy, active, resolute and faithful. When, after a struggle of twelve years, Ali Pacha (q. v.) had rather reduced them to despair than conquered them (1803), they abandoned their country, and entered the service of the powers who had possession of the Ionian Islands. But when Ali found himself hard pressed by the Turks and deserted by the Albanians, he recalled the Suliots to his assistance. Their brave leader, Marco Botzaris, gained some brilliant successes; but the tyrant, who trusted neither the Suliots nor the other Greeks, perished in 1822. The Albanians then joined the Turks; but the Suliots remained true to the cause of Grecian liberty. Suli, however, was reduced by famine, September 4, 1822, and 3000 Suliots embarked in British ships for Cephalonia: the rest dispersed themselves in the mountains. The younger Marco Botzaris, son of the above mentioned leader of the same name, threw himself into Missolonghi, which he successfully defended, and afterwards fell at Carpinitzi. (See *Greece, Revolution of.*) His uncle, Noto Botzaris, defended Missolonghi in 1826. (See *Missolonghi.*) The corps of 500 men, raised and equipped by lord Byron at his own expense, was composed of Suliots, for whom he had a great admiration. See *Byron.*

SULLA, or SYLLA, Lucius Cornelius, Roman dictator, was born at Rome, U. C. 617 (B. C. 137), of the old and noble, but reduced, family of the Cornelii. He received a good education, but indulged himself in excessive dissipation and debauchery. A large fortune, partly left him by a courtesan, and partly obtained by marriage, enabled him to take a distinguished rank among the Roman knights, and to turn his attention to the career of ambition. He served, with brilliant success, as questor in Africa; and it was through his instrumentality that Bocchus was prevailed upon to surrender Jugurtha to the Romans—an event which terminated the Numidian war. Sulla next served under Marius in the Cimbrian war, until, to avoid the jealousy of the latter, he joined the army of the consul Catulus, and having twice defeated the Samnites, was chosen pretor. Having passed the year of his pretorship at Rome, he was, at the expiration of his term, appointed to the government of Asia Minor, where he established Ariobarzanes upon the throne of Cappadocia, and completely subdued Gordius, guardian of a son of Mithridates, then on the throne, in a single battle. He then concluded an alliance with the king of the Parthians, and conducted himself with so much haughtiness that one of the Cappadocians present exclaimed, "Surely this man is or will be master of the world." In the social war, in which Sulla and Marius were at the head of two separate armies, the indefatigable activity and daring courage of the former threw the reputation of the latter into the shade. Yet he himself declared that fortune had a greater share in his success than his own merit; and he readily accepted the surname of Felix (fortunate.) The consulship was the reward of his services (B. C. 88); and the province of Asia, with the conduct of the war against Mithridates, fell to his lot. But Marius was also ambitious of this command, and procured a decree of the people that it should be intrusted to him. Sulla therefore entered Rome at the head of his army, and, after setting a price on the head of his enemy, finally sailed for Greece, a great part of which had been conquered by Mithridates. Here his good fortune still followed him. He expelled Mithridates from Europe, pursued him into the heart of his Asiatic dominions, was victorious in every direction, and finally granted peace, on his own terms, to the enemy, on account of the state of affairs in Italy. During his three years' absence from Italy, his enemies had regained the superiority in Rome. Marius had been recalled; the blood of the friends of Sulla had been shed in torrents; he himself had been proscribed, and his property confiscated. Marius, exhausted by age and tortured by a guilty conscience, left his bed to oppose the return of his rival (see *Marius*), but died soon after entering upon his seventh consulship.

The leaders of his party, Cinna and Carbo, still, however, continued to conduct the public affairs, when Sulla, having intrusted the chief command in Asia to Murena, hastened to Italy at the head of 40,000 men. He landed at Brundusium, and was joined by many of his friends who had been banished from Rome. His enemies were much superior in numbers; but his courage and address rendered him victorious. After having gained four battles over the Roman forces in person, besides several through his generals, and, at the close of the war, defeated a Samnite army under Telesinus, before the walls of Rome, and having witnessed the destruction, captivity, or flight of his enemies, he entered the city as a master. One of his first acts was, to put to death between 6000 and 7000 prisoners of war in the circus; and when the senate, assembled in the temple of Bellona, testified their horror at hearing the shrieks of the victims, he coldly said, "Regard it not, fathers; it is only a few rebels who are punished by my orders." Rome and all the provinces of Italy were filled with the most revolting scenes of cruelty. After satisfying his vengeance by the murder or proscription of several thousands, destroying all the cities of Samnium except three, and massacring the whole population of Preneste, he celebrated a triumph, exceeding in splendour any that had preceded it, and caused himself to be named dictator for an indefinite period (B. C. 81). He now ruled without restraint; repealed and made laws; abolished the tribuneship; added 300 knights to the senate, and admitted 10,000 slaves of persons proscribed to the rights of citizenship. After a few years, to the astonishment of all, he laid down his dictatorship (B. C. 79), and declared himself ready to answer for his actions, although he had caused above 100,000 men, among whom were ninety senators, fifteen men of consular rank, and 1600 knights, to be put to death. Retiring to Puteoli, and abandoning himself to all sorts of debauchery, he died, the following year, of a disgusting disease, occasioned by his excesses. Naturally insinuating and persuasive, Sulla endeavoured, in his youth, to please universally. He spoke of himself with modesty, but was lavish of praises, and even of money, towards others. With the common soldiers he was familiar, adopting their customs, drank with them, and partook of their amusements and hardships. At times, he was severe, active, and vigilant, and impenetrable even to the companions of his excesses. He lent a ready ear to soothsayers and astrologers; and his character was stained by sensuality, avarice, and cruelty. Yet he had sufficient self-control to tear himself from his pleasures when ambition commanded. He was an able general and a great statesman; cruel, but faithful to his promises; calm and cold, but inflexible in his purposes. He sacrificed even his friends to the laws which he himself made and violated, and compelled his fellow citizens to be better than himself. He ordered it to be inscribed on his tomb, that no man had ever equalled him in doing evil to his enemies, nor in doing good to his friends.

SULLY, Maximilian de Bethune, duke de; marshal of France, and first minister of Henry IV.; one of the most estimable men that ever guided the helm of state. He was born at Rosny, of an ancient and noble family, in 1559, and educated in the Protestant (Calvinistic) faith. At the age of eleven years, he was presented by his father to the queen of Navarre, and her son Henry, with whom he was educated. In 1572, he accompanied the young prince to Paris, for the purpose of pursuing his studies there, and was preserved, during the massacre of St Bartholomew's, by the president of the college of Burgundy, who concealed him for three days. In the service of the young king of Navarre (see *Henry IV.*), the baron de Rosny, as he was then styled, distinguished himself, on several occasions, by a bravery approaching to rashness. At Ivry (1590), where he took the standard of the duke of Maine, he was most dangerously wounded. In 1591, he took Gisors; and the capture of Dreux in 1593, Laon in 1594, La Fere in 1596, Amiens in 1597, and Montmelian in 1600, added to his reputation as a warrior. But his abilities as a diplomatist and financier were no less remarkable. In 1586, he concluded a treaty with a Swiss, for a supply of 20,000 troops for his master's service; and in 1597, he was placed at the head of the department of finance, and two years after, he was declared superintendent. About the same time (1599), he also negotiated the marriage of Henry with Mary de' Medici. In his embassy to England, after the death of queen Elizabeth, (1603), he displayed great penetration and address, and concluded a treaty with James I., advantageous to the interests of both countries. In addition to his other offices, he was appointed grand surveyor of France, grand master of the artillery, governor of the Bastile (1602), and superintendent of fortifications throughout the kingdom. His labours, as minister of finance, were attended with the happiest success; and the revenues of the government, which had been reduced to a state of complete dilapidation, by the combined effects of civil anarchy and open warfare, were by his care restored to order, regularity, and affluence. With a revenue of thirty-five millions, he paid off, in ten years, a debt of two hundred millions, besides laying up thirty-five millions. Though frequently thwarted in his purposes by the rapacity of the courtiers and mistresses of the monarch, he nobly pursued his career, ever distinguishing himself as the zealous friend of his country, and not the temporizing minister of his master. His industry was unwearied. He rose every morning at four o'clock, and, after dedicating some time to business, he gave audience to all who solicited admission to him, without distinction of persons. After his return from his mission to England, he was made governor of Poitou, and grand master of the ports and harbours of Provence; and the territory of Sully-sur-Loire was erected into a duchy in his favour, in 1606. On the murder of Henry IV. he was obliged to retire from court (1611); but, after some years, he was recalled by Louis XIII.; and, on making his appearance in the royal circle, the courtiers did not treat him with that respect to which he thought himself entitled; on which he said to the king, "Sire, when your father did me the honour to consult me, we never spoke on business till he had dismissed his flatterers and buffoons to the antechamber." In 1634, he received the staff of a marshal, in exchange for the office of grand master of the artillery. His death took place at Villebon, December 22, 1641. Although Sully approved Henry's conversion to the Catholic faith, yet he himself remained true to his Protestant principles. The courtiers, dissatisfied with his strictness, often ridiculed and complained of him; but even the king's most favoured mistress could not prejudice his royal master against him. (See *Estrées.*)

Sully's *Mémoires des sages et royales Economies d'Etat, domestiques, politiques, et militaires de Henri le Grand*, was printed at Sully, under the eye of the author, in 1636. The second and third volumes did not appear till 1662. There have been many re-impressions, some of which have been mutilated by other hands. These memoirs give us a vivid and accurate picture of the courts of Charles IX., Henry III., and Henry IV., and particularly of the character, habits, public policy, and private life of the latter monarch.

SULPHATE. For the various sulphates, see the respective articles.

SULPHUR. We shall first give the mineralogical history of this substance. It occurs abundantly in nature, both crystallized and massive. The form of its crystals is an acute octahedron, either perfect, or variously modified, and derivable from an octahedron with equal and similar scalene triangular planes, of which the common base of the two pyramids is rhombic; cleavage imperfect; fracture conchoidal; lustre resinous; colour several shades of sulphur-yellow, inclining sometimes to red or green; streak sulphur-yellow, passing into white; transparent or translucent; sectile; hardness between gypsum and calcareous spar; specific gravity 2·072. The massive varieties occur in imbedded globules, also in large pieces, having a granular or impalpable composition, and an uneven or flat conchoidal fracture. The present species has usually been treated of under two divisions, viz. *common* and *volcanic* sulphur, in allusion to the geological situation of the two varieties; the volcanic sulphur being a product of sublimation, while the common sulphur is found in strata not immediately connected with volcanic rocks. Volcanic sulphur appears in the shape of crusts, superficial coatings, stalactites, or loose, mealy masses, and consists generally of columnar particles of composition, not unfrequently terminating in crystalline points. Common sulphur has been further divided into *compact* and *earthy*, the last of which comprehends those varieties which, on account of the smallness of the individuals in the granular compositions, appear as a friable, mealy powder. Sulphur is principally met with in beds of gypsum, or in the accompanying strata of clay. It is generally associated with sulphate of strontian. It also occurs with copper pyrites, galena, and orpiment. It is deposited from several springs, and in large quantities from volcanoes. In Sicily, and several provinces of Italy, sulphur is found in splendid crystals, as well as in globular concretions. It occurs in imbedded spheroidal masses of a brown colour, which is owing to bitumen, at Radoboy, near Crapina, in Croatia. The finest crystals, after those of Sicily, are brought from Conil, near Cadiz, in Spain. It occurs in veins in Suabia, Spain, and Transylvania. The earthy sulphur is found in Poland, in Moravia, and other countries; the volcanic sulphur in Iceland, near Vesuvius in the Solfatara, in fine crystals in Teneriffe, in great profusion near the volcanoes of Java, and in the vicinity of most other active volcanoes. In general, it requires to be purified, either by melting or by sublimation, in order to render it fit for use in the arts.

Sulphur, in a state of purity, is destitute of odour, and of a weak, though perceptible taste. It is a non-conductor of electricity, and of course becomes electric by friction. The specific gravity of roll sulphur varies from 1·97 to 2·00. It undergoes no change from exposure to the air, and is insoluble in water. If a considerable piece of sulphur be exposed to a sudden, though gentle heat, by holding it in the hand, for instance, it breaks to pieces with a crackling noise. When heated to the temperature of about 170°, it rises up in the form of a fine powder, which may be easily collected in a proper vessel. This powder is called *flowers of sulphur*. When heated to the temperature of 218°, it melts, and becomes as liquid as water. Between the melting point and 252°, it is as liquid as varnish, and its colour is that of amber. About the temperature of 340°, it begins to grow thick, and assumes a reddish tinge; and if we continue to increase the temperature, it becomes so thick, that the vessel containing it may be turned upside down without the risk of spilling any of it. Between the temperature of 428°, and that of 482°, it is thickest of all, and its colour is reddish-brown, From 482° to its boiling point, which is not far from 750°, it becomes thinner, but never so thin as it was when below the temperature of 248°; and its reddish-brown colour does not alter. If it be suddenly cooled while in the most liquid state, as by throwing it into water, it becomes instantly brittle; but if it was so hot as to be viscid, and be suddenly cooled, it remains quite soft; so that it may be drawn into threads. In the first case, it crystallizes; in the second, it does not. This state of softness is probably connected with the viscidity; which, when the cold is suddenly applied, prevents the possibility of the particles arranging themselves in regular order. If sulphur be melted in a ladle, or oval vessel, and, as soon as its surface begins to congeal, the liquid portion beneath the surface be poured out, the internal cavity will exhibit long, needle-shaped crystals. Alcohol, sulphuric ether and the oils dissolve a small portion of sulphur. It combines in five proportions with oxygen, and forms five compounds, which have received the names of *sulphuric acid*, *sulphurous acid*, *hyposulphurous acid*, *subsulphurous acid*, and *hyposulphuric acid*. We shall describe the *sulphurous acid* first. It is formed when sulphur is burnt, either in the open air or in oxygen gas. But the way in which it is usually obtained for experiment, is to heat a mixture of sulphuric acid and mercury in a small retort; a gas is evolved, which is sulphurous acid. It is colourless, is possessed of an exceedingly suffocating and disagreeable smell, precisely similar to that of burning sulphur. Its taste is intensely acid and sulphureous. It converts vegetable blues to red, and then gradually destroys them. Its specific gravity is 2·2293. The gas may be collected over mercury, or received into water, which, at the temperature of 61°, will absorb thirty-three times its bulk, or nearly an eleventh of its weight. It consists of sulphur 50 and oxygen 50. It is used in bleaching, particularly for silks: it likewise discharges vegetable stains and iron moulds from linen. In combination with the salifiable bases, it forms sulphites, which differ from the sulphates in their properties. The alkaline sulphites are more soluble than the sulphates; the earthy, less so. They are converted into sulphates by an addition of oxygen, which they acquire even by exposure to the air. By putting sulphuric acid and mercury into the sealed end of a recurved glass tube, then sealing the other end, and applying heat to the former, a liquid sulphurous acid may be obtained: it remains in a liquid state in the air at 0° Fahr.: it is colourless, transparent, and very volatile; specific gravity 1·45. It boils at 14°; but, in consequence of the cold produced by the evaporation of the portion that flies off, the residue remains liquid. It causes a feeling of intense cold when dropped on the hand.

Sulphuric acid is obtained by burning a mixture of about seven parts sulphur, and one part nitre, in large chambers, lined with lead. By this combustion, sulphurous acid and deutoxide of nitrogen are formed. The deutoxide absorbs oxygen from the atmosphere, and is converted into nitrous acid. Both the acids are absorbed by water. The nitrous acid gives out part of its oxygen to the sulphurous acid, and converts it into sulphuric acid; and being reduced to the state of deutoxide, again flies off, unites to oxygen, is converted to nitrous acid, and absorbed by the water. This process goes on till the whole of the sulphurous acid is converted into sulphuric acid. The water, thus acidulated, is evaporated in leaden vessels to a certain point. The evaporation is then continued in glass retorts, till the acid acquires the requisite degree of strength. The ordinary form of a sulphuric acid lead chamber is the parallelopiped, and its dimensions about seventy feet long, ten or twelve high, and sixteen wide. At the middle height of one end, a small oven is built up, with a cast-iron sole, having a large lead pipe, ten or twelve inches in diameter, proceeding from its arched top into the end of the lead chamber. On the sole the sulphur is burned; the combustion being aided, when necessary, by heat applied from a little furnace below it. Above the flaming sulphur, a cast-iron basin is supported in an iron frame, into which the nitre, equal to one tenth of the sulphur, is put, with a little sulphuric acid. The combustion of the sulphur is regulated by a sliding door on the oven. In the roof of the remote end of the large chamber, a small orifice is left for the escape of the atmospheric nitrogen, and other incondensable gases. This apparatus is used for the continuous process; but there is another, or that of the intermitting combustion, which is worthy of notice. Large flat trays, containing the sulphur and nitre, are introduced into the interior of the chamber, or into the oven, and fire is applied to the materials. When the sulphur is burned, and the chamber filled with sulphurous and nitrous acids, the steam of water is thrown in, in determinate quantity, by a small pipe at the side. This causes a tumultuous motion among the gases and the atmospheric oxygen, which favours the mutual reaction. As the steam condenses, the sulphuric acid falls with it. After some time, the chamber is aired by opening valves of communication with the external atmosphere. The operation is then commenced anew. Sulphuric acid was formerly obtained by distillation from sulphate of iron; sixty-four pounds are yielded by six hundred pounds of the sulphate of iron. The following are the properties of pure sulphuric acid. It is colourless, has somewhat of an oily or glutinous consistency, and hence the ancient name of *oil of vitriol.* It speedily chars animal and vegetable substances, when placed in contact with them. It converts vegetable blues to red, and is possessed of an exceedingly acid taste. Acid of the specific gravity 1·85, boils at the temperature of 620°. The boiling point diminishes with the strength. Acid of the specific gravity 1·78, boils at 435°, and acid of the specific gravity 1·65, at 350°. The quantity of water present in one hundred parts of concentrated and pure sulphuric acid is very nearly 18·46. It consists of three proportionals of oxygen, one of sulphur, and one of water; and by weight, therefore, of 3·0 oxygen + 2·0 sulphur + 1·25 water, which equals 6·125, which represents the combining weight of the concentrated sulphuric acid; while $3 + 2 = 5$, which is the equivalent of the dry acid. Sulphuric acid strongly attracts water, which it takes from the atmosphere very rapidly, and in larger quantities if suffered to remain in an open vessel—imbibing one third of its weight in twenty-four hours, and more than six times its weight in a year. If four parts by weight be mixed with one of water at 50°, they produce an instantaneous heat of 300°; and four parts raise one of ice to 212°. On the contrary, four parts of ice mixed with one of acid, sink the thermometer to 4° below 0. It requires a great degree of cold to freeze it; and, if diluted with half a part or more of water, unless the dilution be carried very far, it becomes more and more difficult to congeal; yet, at the specific gravity 1·78, it may be frozen by surrounding it with melting ice. Its congelation forms regular prismatic crystals, with six sides. All the simple combustibles decompose sulphuric acid with the assistance of heat. At about 400°, sulphur converts sulphuric acid into sulphurous acid. Several metals at an elevated temperature decompose this acid, with evolution of sulphurous acid gas, oxidizement of the metal, and combination of the oxide with the undecomposed portion of the acid. Sulphuric acid is of very extensive use in chemistry, as well as in metallurgy, bleaching, and some of the processes for dyeing. In medicine, it is given as a tonic and stimulant, and is sometimes used externally as a caustic. The combinations of this acid with the various bases are called sulphates, and constitute a very important class of salts: for an account of which, see their respective bases.—*Subsulphurous acid.* It has been found, that sulphurous acid has the property of dissolving iron, without the evolution of any gas. The acid gives out half its oxygen to the iron, and converts it into the protoxide of iron, which combines with the acid in question, and which consists of half the oxygen found in sulphurous acid. When the salt is decomposed, the subsulphurous acid is resolved into sulphurous acid and sulphur. It seems incapable of existing except in combination with a base. When insulated, half the sulphur separates, and sulphurous acid remains.—The *hyposulphurous acid* also seems incapable of existing except in combination with a base. When sulphuric acid in a slight excess is poured into a dilute solution of hyposulphite of strontites, the whole strontites is thrown down, and the filtered liquid consists chiefly of a solution of hyposulphurous acid in water. This liquid is transparent and colourless, is destitute of smell, and has an acid, astringent, and very bitter taste. On standing a few hours, it undergoes spontaneous decomposition, the liquid becomes milky, sulphur is deposited, and sulphurous acid remains in solution.—*Hyposulphuric acid.* By causing a current of the sulphurous acid gas to pass through black oxide of manganese, suspended in water, a neutral salt is formed, which, when dissolved, consists of a mixture of neutral sulphate and hyposulphate of manganese. By pouring into this solution barytes water, the whole of the sulphate of manganese is thrown down, while the hyposulphate is converted into hyposulphate of barytes, which remains in solution. A current of carbonic acid throws down any excess of barytes that may have been added; and then, by evaporating the liquid, the hyposulphate of barytes is obtained in crystals. These crystals are dissolved in water, and the barytes they contain precipitated, by means of sulphuric acid; care being taken not to add the sulphuric acid in excess. The liquid now consists of water holding hyposulphuric acid in solution. This acid is colourless and destitute of smell. It may be concentrated till its specific gravity is 1·347. It then begins to be decomposed by heat, sulphurous acid flies off, and sulphuric acid remains behind it. It is found that it can be completely resolved into sulphurous and sulphuric acids, in the proportion of four parts of the former to five parts of the latter. Thus we know five compounds of oxygen and sulphur, all of which are acids. Their names, constituents, and combining weights, are as follows:

	Sulphur.		Oxygen.	Combining Weight
1. Hyposulphurous acid,	2 atoms	+	1 atom	5
2 Subsulphurous acid,	1	+	1	3
3. Sulphurous acid,	1	+	2	4
4. Sulphuric acid,	1	+	3	5
5. Hyposulphuric acid,	2	+	5	9

Sulphur combines readily with chlorine, forming a liquid compound called *chloride of sulphur.* It is formed by passing a current of chlorine through flowers of sulphur, or by heating sulphur in a dry glass vessel, filled with chlorine gas. Its colour is brownish-red, and it possesses an odour similar to sea-plants. Its taste is acid, hot and bitter. It does not change the colour of litmus paper; specific gravity 1·67. When dropped into water, it is decomposed, sulphur being evolved. It is composed of sulphur 2 and chlorine 4·672. By pouring bromine on flowers of sulphur, an analogous compound is formed, called *bromide of sulphur.* Cold water has but little action on it, but, at a boiling temperature, a slight detonation takes place, and hydrobromic acid is formed, together with sulphuric acid and sulphureted hydrogen. It consists of bromine 10 and sulphur 2. Sulphur has the property of combining with iodine, and of forming a compound called *iodide of sulphur.* It is easily formed by mixing together the two constituents in a glass tube, and exposing them to sufficient heat to melt the sulphur. It is of a grayish-black colour, and has a radiated texture. It has not been analyzed. Sulphur has the property of combining with hydrogen, and of forming a gaseous compound, which has received the name of *sulphureted hydrogen.* It has also been called *hydrosulphuric acid.* It may be obtained by pouring sulphuric or muriatic acid upon several metallic sulphurets. Sulphuret of iron is commonly employed, and may be formed by heating together iron filings and sulphur in a covered crucible. Sulphureted hydrogen gas is colourless, and has a strong, fetid smell, not unlike that of rotten eggs. It does not support combustion, nor can animals breathe it without suffocation. Its specific gravity is 1·1805. It is rapidly absorbed by water,—100 cubic inches of this liquid absorbing 308 cubic inches of sulphureted hydrogen. The water thus impregnated is colourless, but it has the smell of the gas; and a sweetish, nauseous taste. It converts vegetable blue colours to red. When the gas is mixed with common air, it burns rapidly, but does not explode. When three volumes of sulphureted hydrogen gas, and two volumes of sulphurous acid gas, both dry, are mingled over mercury, they unite together, and are condensed into a solid body, which adheres firmly to the sides of the vessel. To this compound, which possesses acid properties, the name of *hydrosulphurous acid* is applied. Its taste is acid and hot; and it leaves an impression in the mouth, which continues for some time. It requires a greater heat to produce fusion than sulphur. Another compound of sulphur and hydrogen, called *bisulphuret of hydrogen,* is formed as follows: Carbonate of potash is fused with an excess of sulphur in a covered crucible, by which a sulphuret of potash is formed. A concentrated solution of this sulphuret is poured, by little and little, into dilute muriatic acid, which gives rise to a yellow, oily-looking liquid, which collects at the bottom of the vessel. This liquid is the bisulphuret of hydrogen. It cannot be kept, for it undergoes spontaneous decomposition even in well-closed vessels, being converted into sulphur and sulphureted hydrogen. Sulphur has the property of combining with carbon, and of forming a very remarkable compound, called *bisulphuret of carbon.* It is formed as follows:—Fill a porcelain tube with charcoal, and make it pass through a furnace in such a way, that one end shall be considerably elevated above the other. To the lower extremity lute a wide glass tube, of such a length and shape, that its end can be plunged to the bottom of a glass bottle filled with water. To the elevated extremity lute another wide glass tube, filled with small bits of sulphur, and secured at the further end, so that the sulphur may be pushed forward by means of a wire, without allowing the inside of the tube to communicate with the external air. Heat the porcelain tube, and, consequently, the charcoal which it contains, to redness, and continue the heat, till air bubbles cease to come from the charcoal; then push the sulphur slowly, and piece after piece, into the porcelain tube. A substance passes through the glass tube, and condenses, under the water of the bottle, into a liquid. This liquid was obtained by Lampadius in 1796, and described under the name of *alcohol of sulphur.* It is as transparent and colourless as water; its taste is acid, pungent, and somewhat aromatic; its smell is nauseous and fetid, though quite peculiar; specific gravity 1·27. It boils at 105°, and does not congeal when cooled down to 60°. It is one of the most volatile liquids known, and produces a greater degree of cold by its evaporation than any other substance. It takes fire in the open air, at a temperature scarcely above 620°. It is scarcely soluble in water; but alcohol and ether dissolve it readily. It is composed of sulphur 84·83 and carbon 15·17. Bisulphuret of carbon was found by doctor Brewster to exceed all fluid bodies in refractive power. In dispersive power, it exceeds every fluid substance except oil of cassia, holding an intermediate place between phosphorus and balsam of Tolu. Sulphur combines with *boron, silicon* and *phosphorus,* and forms *sulphurets* of these substances. For an account of the sulphurets of the metals, see the different metals.

SULPHURIC ACID. See *Sulphur.*

SULTAN, in Arabic, signifies *mighty.* The Turkish emperor is called *sultan,* or *grand sultan,* although the title of *padishah* is more dignified. The princes of the family of the khan of the Crim Tartars are also styled *sultan.* The pacha of Egypt is likewise honoured with this title, by the inhabitants of the country, but not at the court of Constantinople. In common life, every person is addressed, out of civility, as *sultanum* (my lord). The Europeans also call the wives of the sultan, *sultanas;* but the Turks call them merely first, second, or third wife, &c. The first is she who first bears a son to the sultan. She is likewise called by Europeans the *favourite sultana.* She has the precedency of all the women of the seraglio, unless her son dies before the sultan, and another of the wives has a son older than any of hers surviving. The title of *sultana* is applied properly only to one of the wives, who is actually declared wife and empress; but this is rarely done, on account of the expense of a second court, which would be necessary. At Constantinople, only the daughters of the sultan are called *sultanas:* and they retain this title even after marriage with the officers of the sultan. The daughters of such a marriage are termed *kanum sultanas* (ladies of the blood). If the mother of the sultan is living, she is styled *Walidet-sultana*, or *sultana Valide.* She is treated with great respect, and her son cannot choose a new wife or concubine without her consent. (See *Harem.*) *Sultana* is also the name of a Turkish ship of war, carrying about sixty-six guns, with 800 men.

SUMACH (*rhus*); a genus of plants, belonging to the natural family *terebinthaceæ*, consisting of shrubs or small trees, with small, inconspicuous flowers, disposed in racemes or panicles, and leaves usually pinnate, somewhat resembling those of the walnut, but in some species ternate or simple. More than seventy species are known: all have a lactescent juice, more or less acrid, and containing a gum-resin.—*R. coriaria* is found in the countries about the Mediterranean. The young branches, dried and powdered, were used by the ancients for tanning leather; and at the present time, in some parts of Spain and Italy, the black morocco is chiefly prepared with this plant. The roots contain a brown, and the bark a yellow dye. The seeds are in common use at Aleppo, at meals, to provoke an appetite. Both leaves and seeds are used in medicine, as astringent and styptic.—*R. typhina* is a shrub, twelve or fifteen feet high. The young branches are thick, and covered with a dense coating of hairs; hence the common name of *stag's horn sumach.* The leaves are pinnate, and composed of eleven to fifteen serrated leaflets. The flowers are small and numerous, disposed in an upright hairy panicle, and are succeeded by small berries, which finally turn red, and render this shrub a conspicuous object in the woods. It has been long cultivated in the European gardens for ornament. The berries possess the same properties as those of the preceding, and a very abundant milky juice flows from the bark. This last is pulverized, and employed for tanning.—*R. glabra* is distinguished by the smoothness of the leaves and young shoots. The berries dye red, and the branches boiled with the berries afford a black, ink-like tincture. It is likewise cultivated for ornament, in the European gardens, and possesses the same properties as the preceding. —*R. pumila* is a low, pubescent species, which is said to be the most poisonous of the genus.—*R. veneñata*, commonly called *dog-wood* or *poison sumach*, attains the height of twelve to twenty feet. The leaves are smooth and entire: the flowers greenish-white, disposed in loose panicles, and succeeded by whitish berries. The poisonous qualities of this plant are well known. Some persons are affected by touching or smelling any part of it, or even by coming within a certain distance; while others appear to be entirely exempt from its influence. When the poison has been communicated, inflammation appears on the skin, in large blotches, in a day or two; soon after, small pustules rise in the inflamed parts and fill with watery matter, attended with intolerable itching and burning, and lasting several days—*R. copallina* is easily distinguished by the leafy expansion on each side of the common petiole. The flowers are greenish-yellow, and are disposed in panicles at the extremities of the branches.—*R. radicans*, often called *poison ivy*, is a climbing, woody vine, which adheres to the trunks and branches of trees, by means of root-like suckers. The leaves are ternate, and the flowers are disposed in little axillary racemes. It affects certain individuals in the same manner as the poison sumach; but it seems to be less virulent, and fewer persons are exposed to its influence.—*R. aromatica* differs widely in habit from the others. It is a small shrub, with ternate leaves, having the flowers disposed in aments. The berries are hairy and red. The celebrated Japan varnish is obtained from a species of *rhus*, which was formerly considered identical with our poison sumach; but now is recognised as a distinct species, having the under surface of the leaves downy and velvety. This varnish oozes from the tree, on its being wounded, and grows thick and black when exposed to the air. It is so transparent, that when laid pure and unmixed upon boxes or furniture, every vein of the wood may be clearly seen. With it the Japanese varnish over the posts of their doors and widows, their drawers, chests, boxes, cimeters, fans, tea-cups, soup-dishes, and most articles of household furniture made of wood.

SUMAROKOFF, ALEXANDER PETROWITSCH, a distinguished Russian tragic poet, who formed himself on French models, was born in 1718, and died at Moscow in 1777. His tragedies, in point of harmony, taste, and purity of style, are compared to those of Racine, though inferior in poetical inspiration. His principal works are Sineus and Truwor (which appeared in 1755); Semire, Jaropolk und Deinise, Korew and Aristone; all of which were translated into French in 1801. He also wrote Hamlet, Ritschelas, and the Pseudo-Demetrius. The last is considered his best work (translated into French in 1800, also into English). Sumarokoff also wrote comedies, fables and epigrams.

SUMATRA; an island in the eastern seas, the largest and most westerly of the Sunda islands, separated from the continent by the straits of Malacca, and from Java by the straits of Sunda. It is divided obliquely by the equator into almost equal parts, and its general direction is from N. W. to S. E.; lat. of one extremity 5° 56′ N., of the other 5° 56′ S. It is about 1000 miles long, and 165, on an average, broad; square miles, about 160,000. A chain of high mountains runs through the whole extent of the island, and the ranges are, in many parts, double and treble. Mount Ophir, immediately under the equinoctial line, is supposed to be the highest visible from the sea, its summit being elevated 13,842 feet above that level. Among the ridges of mountains are extensive plains of great elevation, and of temperate climate, the most valuable and best inhabited portion of the island. Here, too, are found many large and beautiful lakes. The ridges of mountains lie towards the western shore; in consequence, all the greatest rivers are found on the eastern side. The climate varies with the height of the ground; but on the plains, the heat is not so great as might be expected from the position; the thermometer, in the greatest heat, about two o'clock p. m., generally fluctuating from 82° to 85°: at sunrise, it is usually as low as 70°. The soil is generally fertile; the population for the most part thin; and a great portion of the island is covered with an impenetrable forest. The most important article of cultivation is rice, of which there are many different species. Of articles of commerce, the most abundant is pepper, formerly obtained in greater quantities than at present. Other productions are, gumbenzoin, camphor, cassia, cotton, coffee, &c. The upas tree, and the gigantic rafflesia, are among the vegetable curiosities. It is rich in mineral and fossil productions; has long been famous for gold, which is still procured in considerable quantities; and has mines of iron, copper, and tin. It produces a great variety and abundance of fruits, and wild animals, as elephants, tigers, rhinoceroses, alligators, &c.; also birds of various kinds. The inhabitants are rather below the middle size: their limbs are for the most part slight, but well shaped. The women flatten the noses and compress the skulls of children newly born; and the males destroy their beards. The inhabitants have made but little progress, generally, in the arts of industry, though they excel in some particular manufactures. The Malay language is every where spoken along the coasts of Sumatra. (See *Malays.*) Among the modern political divisions of the island, the principal are the empire of Menancabow and the Malays, the Achineese (see *Acheen*), the Battas, the Rejangs, and the people of Lampong. The Dutch first began to form settlements on the coasts in 1666, and in 1685, the English also established themselves at Bencoolen. In 1825, the presidency of Bencoolen, of which the capital was Fort Marlborough, was ceded to the Dutch, in return for Malacca. The latter were already in possession of Padang, a strong fortress on the western coast, and of Palembang (25,000 inhabitants), on the eastern coast. Previous to the late revolution in the Netherlands, they were making preparations to reduce the whole island. Sir Thomas Stamford Raffles was the first European who penetrated to the interior of the island, which he crossed from Bencoolen to Pelembang. See Marsden's *History of Sumatra*, and Anderson's *Mission on the East Coast of Sumatra* (Edinburgh, 1826, 2 vols.).

SUMMER; in Great Britain, the season comprehended in the months of May, June, and July. The equinoxes and solstices divide the year into four seasons. From the vernal equinox to the summer solstice is with us the astronomical spring. From the summer solstice to the autumnal equinox is our summer. The time betwixt the autumnal equinox and the winter solstice is our autumn, and from the winter solstice to the vernal equinox is our winter. Notwithstanding the changes in the signs of the ecliptic, produced by the precession of the equinoxes, the ancient signs of summer have remained in the calendar. In the northern hemisphere, they are Cancer, Leo, Virgo; in the southern, Capricorn, Aquarius, Pisces. Our summer takes place at the time when the earth is at the greatest distance from the sun, and hence moves the slowest. The diameter of the sun, therefore, appears considerably smaller at this season than in winter, and the summer of the northern hemisphere has ninety-three and a half days,—a few days more than the winter,—and, therefore, more than the summer of the southern hemisphere. Notwithstanding the greater distance of the sun in summer, his rays have much more effect than in winter, because they fall more directly upon the northern hemisphere. He also rises much sooner, and sets much later, and, therefore, describes a much greater arc in the heavens than in winter. At the time when he has reached the tropic of Cancer, he ascends highest in the heavens, and remains longest above the horizon; and we might, therefore, suppose that this would be the period of the greatest heat. But experience shows that the greatest heat generally takes place in August, throughout the whole northern hemisphere, far beyond the polar circle. The reason of this circumstance is, that, in August, the influence of the sun's rays has been felt for a long time on the earth, and that, within the polar circle, as far as to the tenth or twelfth degree from the pole, the ice has been thawed and the temperature of the air moderated; hence the wind which blows from those northern regions to the south is milder.—See Meyer's *Manual of Physical Astronomy, Theory of the Earth*, and *Meteorology* (German, Göttingen, 1805).

SUN. This magnificent luminary, the great source of light, heat, and life, appears to us a circular and resplendent disk; from which appearance, and the observation of the solar spots (described below), it follows that this body has a form nearly spherical, and turns round its axis once in about twenty-five and a half days, because a sphere only can appear to the eye like a circular disk in all positions. The true relation of the sun, not only to our earth, but to all the planets of our system, has been known since the discoveries of Kepler. The primary planets, accompanied by their moons, revolve about the sun in elliptical orbits, which have but little eccentricity, the sun itself being situated in a focus common to all these ellipses. His mean distance from the earth, which has been finally determined, with tolerable accuracy, by the observation of his parallax (see the subsequent part of this article), amounts, in round numbers, to about 95,000,000 miles: the sun, therefore, is above 400 times farther distant from us than the moon; and a cannon ball which moves 600 feet in each second, would require about twenty-six years to reach it. The apparent diameter of the sun is pretty nearly the same as that of the moon: it is somewhat above half a degree; yet, according to the various points of the earth's orbit, from which we observe the same, varies somewhat—a necessary consequence of the elliptical form of this orbit. The conclusions which we draw from the differences in the apparent magnitude of the sun as to the different distances of this body from the earth, agree perfectly with what we learn, respecting the same subject, from other sources; so that this point may be considered as well settled. The mass of the sun, which exceeds that of all the planets together 800 times, is, in proportion to that of our earth, according to Piazzi, as 329,630 to 1; the diameter exceeds that of the earth 112 times, the surface 12,700 times, the solid contents 1,435,000 times. The earth, appears, as Biot says, by this statement, a mere grain of sand, compared to the sun, which, again, in his turn, is but a point in infinite space. Respecting the physical structure of the sun, astronomers have entertained different opinions, from times immemorial. The hypothesis of Herschel is, that the sun is an opaque body, having on its surface mountains and valleys, like the earth, the whole surrounded by an atmosphere constantly filled with luminous clouds. These sometimes open in particular places, and allow the body of the sun to be seen; hence the appearance of solar spots. This hypothesis seems to be preferable to that of Laplace (who imagines the sun to be a burning body), because it allows us to con-

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